CONTENTS

MANITOU NORTH AMERICA, INC.

6401 IMPERIAL DRIVE
Waco, TX 76712-6803

For Parts Orders contact your Manitou North America Dealer or call:
Manitou North America, Parts Dept. 800-425-3727 or (254) 799-0232
Parts Dept. Fax: (254) 867-6504 Website: www.manitou-na.com

CALIFORNIA PROPOSITION 65 WARNING

Diesel Engine Exhaust and some of its constituents are known to the State of California to cause cancer, birth defects or other reproductive harm.

S402TC-D, S502TC-D, S602TC-D, S404TC-D, S504TC-D & S604TC-D

OPERATOR/SERVICE MANUAL

THIS OPERATOR'S MANUAL MUST BE KEPT IN THE LIFT TRUCK. IT MUST BE READ AND UNDERSTOOD BY THE LIFT TRUCK OPERATOR.

CATALOG B251
R01-93

CONTENTS

INTRODUCTION 1

OPERATOR TRAINING/QUALIFICATIONS 2

GENERAL RULES FOR OPERATORS 3

DESCRIPTION 8

SPECIFICATIONS 9

MACHINE OPERATING CAPACITIES 13

LUBRICANTS 14

MAINTENANCE PRACTICES 15

INSTRUMENTS AND CONTROLS 17

BEFORE STARTING A NEW TRUCK 23

DRIVING THE TRUCK 24

SERVICING SCHEDULE 25

- DAILY OR EVERY 10 HOURS SERVICE 26
- EVERY 50 HOURS SERVICE 28
- EVERY 150 HOURS SERVICE 32
- EVERY 300 HOURS SERVICE 36
- EVERY 600 HOURS SERVICE 38
- EVERY 1,200 HOURS SERVICE 41
- SEASONAL OR EVERY 2,400 HOURS SERVICE 42

ELECTRICAL SYSTEM 43

STORAGE 47

INTRODUCTION

Before operating your new forklift truck, read and fully understand the Rough Terrain Forklift Safety Manual and the K-D Manitou Operator's/Service Manual. Be sure these manuals are followed and the truck is operated within its capacity at all times.

The purpose of the owner's manual is to provide safe operation instructions and list the scheduled maintenance requirements for your K-D Manitou, Inc. forklift.

By following the instructions in this manual, your rough terrain forklift will provide safe operation and excellent performance.

This manual is not intended to be a comprehensive technical manual. It will, however, show you how to maintain your K-D Manitou, Inc. forklift truck and avoid unnecessary mechanical problems.

The K-D Manitou, Inc. Models S402TC-D through S604TC-D forklift trucks are a combination of components manufactured by K-D Manitou, Inc. and the Ford Motor Company. These rough terrain forklifts are built upon the Ford Model 445D Power Train and are designed for ease of operation and simple routine servicing.

The terms "left" and "right", "front" and "rear" used in this manual refer to the position as if the driver were seated normally in the driver's seat.

When ordering parts or requesting technical information, the following numbers are required:

Truck model number _____

Truck serial number _____

Attachment model number _____

Attachment serial number _____

Power train number _____

Mast model number _____

Mast serial number _____

Engine number _____

For quick reference it is recommended these numbers be recorded as soon as possible.

OPERATOR TRAINING/QUALIFICATIONS

1. Safe operation is the responsibility of the operator. This equipment can be **DANGEROUS** if not used properly. Only trained and authorized operators shall be permitted to operate a rough terrain forklift truck. Operators of rough terrain forklift trucks shall be qualified as to visual, hearing, physical, and mental ability to operate the equipment safely.
2. **BEFORE** operating any rough terrain forklift truck, truck operators shall have read and be familiar with the operator's manual for the particular truck being operated; they shall also abide by all safety rules and practices. The operator shall be familiar with the safety rules and information contained in the American National Standard Institute, Safety Standard For Powered Industrial Trucks, ANSI B56.6 guide lines. The operator should also be familiar with areas of use of different types of lift trucks as specified in the National Fire Protection Association Booklet on industrial trucks, NFPA NO. 505.
3. The owner/user shall ensure that operators understand that safe operation is the operator's responsibility. An effective operator training program should center around company policies, operating conditions, and rough terrain forklift trucks.

MODIFICATIONS, NAMEPLATES, MARKINGS AND CAPACITY

1. Modifications and additions which affect capacity and safe operations should not be performed by the customer or user without the manufacturer's prior written approval. Capacity, operation, and the maintenance instruction plates, tags, or decals shall be changed accordingly.
2. If the truck is equipped with front end attachments other than factory installed attachments, the user should request that the truck be marked to identify the attachments, show the approximate weight of the truck and attachments combination, and the capacity of the truck and attachment combination at maximum elevation with load laterally centered.
3. The user should see that all nameplate and markings are in place and are maintained in a legible condition.
4. The user should mark on the side of the truck in letters at least 1-1/2 inches high, the weight of the vehicle and the load capacity.
5. The user should consider that changes in the load dimension may affect truck capacities.

STABILITY

Experience has shown that high lift trucks which comply with the stability standard stated previously are stable when properly operated. However, improper operations or faulty maintenance which are beyond the control of the manufacturer or dealer - may produce a condition of instability. Some conditions which also affect stability are:

a) Ground and floor conditions.
b) Grade.
c) Speed.
d) Loading (trucks equipped with attachments behave as partially loaded trucks even when operated without a load on the attachment).
e) Dynamic and static forces.
f) The judgment exercised by the operator.

! ! ! ! OPERATOR WARNING ! ! ! !

THIS EQUIPMENT CAN BE DANGEROUS IF NOT PROPERLY USED!
SAFE OPERATION IS THE RESPONSIBILITY OF THE OPERATOR!

REFER TO: Rough Terrain Forklift Safety Manual, published by;
Industrial Construction Equipment Division
410 N. Michigan Ave., Chicago, Illinois 60611

Only trained and authorized operators shall be permitted to operate a rough terrain forklift truck. Operators of rough terrain forklift trucks shall be physically and mentally qualified to operate the equipment safely according to all safety rules and practices. Before operating any rough terrain forklift truck, operators shall have read and fully understand the operator's manual for the particular truck being operated; they shall also abide by all safety rules and practices.

The operator shall be familiar with the operation and function of all controls and instruments before operating the rough terrain forklift truck. The operator shall develop safe working habits and also be aware of hazardous conditions in order to protect himself, other personnel, the rough terrain forklift truck, and other material.

WARNING! DO NOT operate the lift truck if it is in need of repair. If the truck becomes unsafe in any way while you are operating it, park the truck and report the matter immediately to the proper authority! Report faulty push-pull cables (throttle control cable, park brake cable, etc.) immediately! Never adjust or modify the control cable(s) with the power on or the engine running. Serious injury or death could result!

WARNING! HAZARDOUS TIPOVER CONDITIONS!

IT IS THE OPERATOR'S RESPONSIBILITY TO JUDGE WORKING CONDITIONS AND ADJUST TRUCK OPERATIONS ACCORDINGLY.

When traveling over rough terrain, soft ground, or wet/icy surfaces, slow down and shift to a lower gear.

Travel only at speeds that permit stopping in a safe manner. **WARNING:** KEEP THE LOAD LOW!

Downshift with great care. Sudden deceleration could shift or topple the load.

A sudden reversal of travel direction could tip the load or over-turn the forklift. Come to a gradual stop before reversing direction.

Be alert and careful when operating near the edge of a loading dock, embankment, ditch or ramp.

Avoid excessively steep slopes or unstable surfaces. If you must drive on a slope, keep the load low and proceed with extreme caution! Do not drive across EXCESSIVELY steep slopes under any circumstances!

Avoid turning on an incline, if at all possible. If it is necessary, use extreme caution and make the turn wide and SLOW!

WARNING: Travel on inclines, slopes, ramps and downgrades only as follows:

LOADED forklift . . . with forks (and load) pointed uphill.

EMPTY forklift . . . with forks pointed downhill.

Reduce speed and sound horn at blind intersections, exits and when approaching pedestrians.

Slow down for turns, ramps, dips, uneven or slippery surfaces and in congested areas. Avoid driving over loose objects and holes in roadway surfaces to prevent losing the load or tipping the machine.

IN THE EVENT OF AN OVERTURNED OR TIPPED FORKLIFT

Serious injury or death can occur if the operator is thrown from the forklift. For this reason the operator must always wear the seat belt. **IN THE EVENT OF AN OVERTURNED OR TIPPED FORKLIFT, THE OPERATOR SHOULD REMAIN WITHIN THE CONFINES OF THE OVERHEAD GUARD.** Immediately grasp the steering wheel firmly and lean away from the point of possible impact. In case of an accident, seek immediate medical attention, report the accident to proper authorities, and inspect the forklift for possible damages.

GENERAL RULES FOR OPERATORS

WARNING! Improper operation of this lift truck can result in serious injury or death! Therefore, the operator must maintain safe operating procedures at all times. He must be on constant alert to hazardous conditions in order to protect himself, other personnel, the lift truck and surrounding material or equipment.

1. Understand the operating rules for the particular truck.

2. DO NOT operate any truck unless you are properly trained and authorized for that particular type of truck.

3. DO NOT operate any truck with wet or greasy hands or feet.

4. Ensure the following checks have been made before operating the truck:

a.) Tires	Check condition and pressure of tires.
b.) Warning Devices	Verify that they are working.
c.) Lights	Check that they are clean, working and aimed properly.
d.) Brakes	Check that they are working properly.
e.) Lift and Tilt	Check for leaks, worn or cracked chains or fork damage.
f.) Guards	Check that overhead guard and load backrest extensions are in place and functional.
g.) Battery	Check battery terminals.
h.) Leaks	Check for engine oil, fuel, hydraulic oil and water leaks.
i.) Steering Mechanism	Check for full motion without slack or tight spots.
j.) Controls	Check for full motion and proper function.
k.) All Fluid Levels	Check fuel tank, hydraulic tank, brake fluid and battery.

   DO NOT operate truck if it is in need of repair. If it is in an unsafe condition, or if it might contribute to an unsafe condition, tag the truck, remove the key, and report the condition to the proper authority.

   If the truck becomes unsafe in any way while you are operating it, park the truck and report the matter immediately to the proper authority.

   WARNING! Report faulty push-pull cables (throttle control cable, park brake cable, etc.) immediately! Never adjust or modify the control cable(s) with the power on or the engine running. Serious injury or death could result!

5. Be certain that your truck is the correct fire safety type for the area in which you are working. The proper type designation for the truck is on the nameplate. In areas classified as hazardous, use only trucks approved for use in those areas. If you are unsure of the classification of the area you wish to enter, ask your supervisor before entering.

6. DO NOT remove overhead guard or load backrest extension unless specifically authorized.

7. DO NOT start or operate the truck or any of its functions or attachments if you are not in the designated operator's position.

8. Keep hands, feet and other parts of your body inside the operator's designated area.

9. DO NOT put any part of your body into the mast area or between the mast and truck. Also, be aware of pinch points on attachments, especially reach mechanisms.

10. DO NOT allow anyone to stand or walk under the elevated portion of any truck whether it is empty or loaded.

GENERAL RULES FOR OPERATORS - CONT'D

11. DO NOT permit passengers to ride on the truck unless a safe place to ride has been provided in a manner approved by the truck manufacturer.

12. Observe and comply with instructions concerning floor loading. Truck weight information is on the nameplate.

13. Travel with load engaging means low and, where possible, tilted back. DO NOT elevate the load except during stacking.

14. Look in the direction of travel and keep a clear view of the path of travel.

15. When visibility is impaired, operate truck with opposite end in the travel direction, or use extreme caution.

16. If the truck is used for the purpose of elevating personnel, it should be equipped with properly designed work platform secured to the elevating carriage. DO NOT operate lifting mechanism if chain is slack.

17. DO NOT overload the truck. Check capacity plate for load weight and load center information.

18. Start, stop, travel, steer and brake smoothly. Slow down for turns & uneven or slippery surfaces that could cause truck to overturn or slide.

19. Use special care when traveling without a load as the risk of overturning may be greater when cornering and at a high speed.

20. Before entering trucks or trailers, be certain the brakes on the truck or trailer are applied and the wheel chock(s) are in place. If trailers are not coupled to a tractor, supports may be needed to prevent upending or corner dipping.

21. Before driving over a dock board or bridge plate, be certain that it is properly secured. Drive carefully and slowly across the dock board or bridge plate, and never exceed its rated capacity.

22. DO NOT run over objects on the roadway surface as truck stability could be adversely affected.

23. When approaching cross aisles, slow down, sound horn and if vision is obstructed, keep on the right side. Operate the truck under all conditions at a speed that will permit it to be brought to a stop safely.

24. Use special care when operating on an incline, travel slowly and do not angle or turn.

25. DO NOT operate on grades in excess of that recommended by the truck manufacturer. When ascending or descending, operate loaded counterbalanced rider trucks with the load upgrade.

26. Operate unloaded trucks on all grades with the load engaging means downgrade.

27. Yield the right of way to pedestrians.

28. DO NOT handle unstable or loosely stacked loads. Use special care when handling long, high, or wide loads to avoid losing load, striking bystanders, or tipping the truck.

GENERAL RULES FOR OPERATORS - (CONT'D)

29. When attachments are used, extra care should be taken in securing, positioning and transporting the load. Operate trucks equipped with attachments as partially loaded trucks. Handle only loads within the capacity of the truck and attachment. The truck capacity plate should indicate the capacity of the truck and attachment combination. Check the attachment manufacturer's operator's manual for more specific information.

30. Operate tilting mechanism slowly and smoothly. DO NOT tilt forward when elevated except to pick up or deposit a load in a rack or on a stack. When stacking, use only enough backward tilt to stabilize the load.

31. If upright malfunctions or becomes stuck in a raised position, operate lift control to eliminate any slack chains. DO NOT go under the elevated portion of the truck to attempt repairs.

32. Only specifically authorized and qualified persons should make repairs and adjustments to the truck.

33. Fumes from operation of engine powered trucks in poorly ventilated areas can be harmful to health. Turn off engine when not in use.

34. If a truck has to be parked on an incline, chock the wheels.

35. Report all accidents involving personnel, building structures, and equipment to the proper authority.

36. Before leaving the truck, be sure that the lifting mechanism is lowered, controls are placed in neutral, parking brake is applied, power is shut off and the control or ignition circuit is turned off. Keep truck clear of exits and access to stairways and fire equipment.

37. When leaving your truck unattended, the truck should be secured against operation by unauthorized personnel.

38. On trucks equipped with individual wheel brake pedals, lock pedals together for simultaneous operation before travel on public roads when changing job sites.

39. On trucks equipped with differential lock, the lock should not be engaged when driving on the road or at high speeds or when turning. If the lock is engaged when turning, there could be loss of steering control.

40. When lifting to high levels, be certain that the truck is level and clear of trench walls or excavations.

41. Use caution when maneuvering near scaffolding, trenches and excavations.

42. Where possible, use site roadways and choose the route that avoids steep, slippery or loose gradings and unsettled trenches.

43. Drive in such a manner as to minimize bouncing as this could cause loss of control of the truck.

44. To lessen the chance of injury in accidents or sudden stops the operator is urged to be properly restrained at all time, using the seat belt provided.

45. DO NOT raise, carry nor allow personnel on the forks of the vehicle.

46. DO NOT attempt to open or close train car doors with the vehicle.

GENERAL RULES FOR OPERATORS - (CONT'D)

47. DO NOT handle loads which are higher than the backrest or backrest extension unless the load is fully secured.

48. Elevate forks or other lifting mechanism only to pick up or stack load. Lift and lower with mast vertical or tilted slightly back ***NEVER FORWARD***. Watch out for obstructions, especially overhead.

49. When using forks, space forks as far apart as load will permit. Before lifting, be sure that the load is centered and forks are completely under load.

50. Understand the trucks limitations and keep the truck under control. Do not try to do too much too fast.

51. Check clearance carefully before driving under electrical lines, bridges and entering or leaving buildings.

52. An overhead guard is intended to offer protection from falling objects, but cannot be considered protection against every possible impact. Therefore, it should not be considered a substitute for good judgment and care in load handling.

53. DO NOT add to or modify the truck.

54. DO NOT pass another truck traveling in the same direction at intersections, blind spots or at other dangerous locations.

55. Slow down and sound the audible warning device(s) at locations where vision is obstructed.

56. Railroad tracks should be crossed at an angle wherever possible. DO NOT park closer than 6 feet (1830mm) to the nearest rail of a railroad track.

57. Trucks steered with their rear wheels have exaggerated tail swing. Operator familiarity with this feature is necessary for safe operation.

58. DO NOT indulge in stunt driving or horseplay.

59. Make starts, stops, turns or direction reversals in a smooth manner so as not to shift and/or overturn the truck.

60. Slow down for wet and slippery surfaces. Operate at speeds which are compatible with the conditions encountered.

61. Avoid running over loose objects on the roadway surface.

62. The handling of suspended loads by means of crane arm (boom) or other device, can introduce dynamic forces affecting the stability of a truck that are not considered in the stability criteria. Sudden stops, starts and turns can cause the load to swing and create a hazard.

GENERAL RULES FOR OPERATORS - (CONT'D)

62. - (CON'D) The following precautions shall be taken when handling suspended loads:

    a) DO NOT exceed the truck manufacturer's load rating of the truck as equipped for handling suspended loads.
    b) The load shall only be lifted vertically and never dragged horizontally.
    c) The load shall be transported with the bottom of the load and the mast as low as possible.
    d) Maneuvering the truck with load elevated shall be done slowly and cautiously and only to the extent necessary to permit lowering to the transport position.

63. When attachments are used, extra care shall be taken in securing, manipulating, positioning and transporting the load. Operate trucks equipped with attachments as partially loaded trucks even when not handling a load.

64. The engine shall be stopped and the operator shall not be on the truck while refueling.

65. Before refueling LP gas-powered trucks, close the LP gas cylinder valve. If the system does not include a self sealing disconnect coupling, run the engine until it is out of fuel and stops running.

66. DO NOT smoke while refueling.

67. DO NOT operate a truck with a leak in the fuel system.

68. DO NOT use open flames when checking electrolyte level in storage batteries or liquids in fuel tanks.

69. Spillage of oil or fuel shall be carefully washed away or completely evaporated and fuel tank cap replaced before starting engine.

70. Handle LP gas tanks with care. Physical damage, such as dents, scrapes or gouges may dangerously weaken the tank and make it unsafe for use.

71. Some units may have the optional 45 degree tilt cylinders installed and must be operated per instructions on the decal below which is installed on these trucks.

WARNING
This unit is equipped with special 45 degree laydown tilt cylinders. The full 45 degree tilt feature is to be used for TRANSPORTING on truck or trailer only and not on the jobsite. DO NOT tow the forklift with the mast tilted forward. DO NOT tilt mast forward beyond 20° with mast extended, other than for ground clearance.
B6143

DESCRIPTION

These rough terrain forklifts are specially designed for use on unimproved natural terrain as well as the disturbed terrain of construction sites where the regular small industrial trucks cannot operate.

In this role, the lift truck is of maximum benefit to construction engineers, builders, farmers, etc., for transporting materials and equipment over uneven ground with a minimum of labor and expense.

This lift truck has been built around the well proven Ford powertrain, which is basically a tractor type engine and transmission with specific modifications which enable it to withstand demanding work. The skid unit is supported within a strong steel chassis which absorbs the stresses of the mast, counterweights and steering axle.

The mast rails are manufactured to K-D Manitou, Inc. specifications and roll one within the other. The roller mounted fork carriage is lifted by a dual chain system controlled by single acting hydraulic controlled equipment.

A full power steering system of the non-reactive type is installed and consist of an engine mounted hydraulic pump, a power steering unit mounted below the steering wheel and two double acting hydraulic cylinders mounted on the rear axle.

There are two hydraulic circuits which are fully independent and contain return line filters which insure the fluid is being continually filtered during circulation.

1ST Circuit - lift and tilt cylinder and attachments
2ND Circuit - power steering only

This rough terrain lift truck is designed with a complete electrical system, including alternator with voltage regulator, starter, and lighting.

The following pages contain detailed specifications of the complete truck, and all necessary servicing instructions to maintain it in proper operational condition.

K-D Manitou, Inc. policy is one of continual improvement and development, and may therefore introduce changes at any time without prior notice.

SPECIFICATIONS

ENGINE, FORD (445C)	Diesel, 4 stroke, 3 cylinders in-line
Bore	4.4 IN.
Stroke	4.2 IN.
Displacement	192 CU, IN.
Compression Ratio	16.3:1
Rated Speed	2200 RPM
Idle Speed	600-850 RPM
Maximum Speed (No Load)	2350-2400 RPM
Max. Gross Horse Power	52HP @ 2200 RPM
Max. Gross Torque	157 FT. / LB. @ 1200 RPM
Firing Order	1, 2, 3
Injection	23 Degrees BTDC
Valve Clearance (Lash) Warm	
Intake	0.014 IN. GO - 0.016 IN. NO GO
Exhaust	0.017 IN. GO - 0.019 IN. NO GO
Injection Pump	Rotary
COOLING SYSTEM	
Type	Water cooled. Closed circuit with by-pass
Fan:	
Number of blades	6
Diameter	16 IN.
Thermostat:	
Start to open	180 Degrees F.
Fully open	203 Degrees F.
Radiator Cap Pressure	10 PSI
ELECTRICAL CIRCUIT	
Battery	12V - 128 AMP.
Alternator Max. Output	55 AMP.
Safety Fuses	Dash Mounted
Starter Motor	Positive engaging with solenoid
TRANSMISSION	Torque Converter
Gear Box:	
No. of forward speeds	4
No. of reverse speeds	4
Forward / Reverse Shifter	Electrical Switch (Steering Column)
Differential Lock	Manual (Floorboard)

SPECIFICATIONS - CONT'D

BRAKES

Type	Oil Immersed, Multi Disc.
Diameter	8 In. O.D.
Service Brake	Foot Applied on Front Axle
Parking Brake	Hand Lever Applied on Front Axle

HYDRAULIC CIRCUIT

Main Circuit	
Type of Pump	Gear Type
Flow Rate (@ 2200 RPM)	28.4 GPM
Nominal Pressure of Mast Models:	
2100	1350 PSI
4700	2100 PSI
5300	1500-2050 PSI (Depending on Capacity)
Power Steering Circuit	Hydrostatic
Type of Pump	Gear Type
Flow Rate (@ 2200 RPM)	5.9 GPM
Relief Valve Setting	1600 PSI
Steering Wheel	(15" DIA.)
Main Control Valve	Sectional Type (3 Spool Standard)
First Spool	3 Way Spring Centered for Lift
Second Spool	4 Way Spring Centered W/ Anti-Cavitation Valves on Both Ports for Tilt
Third Spool	4 Way Spring Centered For Side Shift
Maximum Valve Capacity	2500 PSI

CAPACITIES

Engine Oil Crankcase (W/Filter)	7 Qts.
Transmission	19 Qts.
Front Axle Housing	48.3 Qts.
Fuel Tank	17.5 Gal.
Cooling System	11 Qts.
Hydraulic Tank	17.5 Gal.
Rear Axle Housing (4WD Only)	5.81 Qts.
Rear Axle Hub (Each, 4WD Only)	1.13 Qts.

SPECIFICATIONS - CONT'D

TRAVEL SPEED (Unloaded) . . . . . 0 - 18.5 MPH

TIRE SIZE

Drive Tire (S402 & S404) . . . . . 16.9 X 24, 6 Ply
Drive Tire (S502, S602, S504 & S604) 16.9 X 24, 10 Ply R4
Steer Tire . . . . . 12 X 16.5, 10 Ply Flotation

TIRE PRESSURE

Drive Tire . . . . . 32 PSI
Steer Tire . . . . . 60 PSI

WHEEL LUG TORQUE

Drive & Steer Tires . . . . . 304 to 336 Ft / Lbs
Steer Tire . . . . . 231 to 253 Ft / Lbs

FORKS

Standard . . . . . Pallet Type 48" Length
Optional . . . . . Pallet Type 60", 72", 84" and 96" Lengths
Type . . . . . Shaft or ITA Hook
Concrete Block Forks
Sizes . . . . . 42" or 48" Lengths
Type . . . . . Shaft or ITA Hook
NOTE: Concrete Block Forks have a maximum per fork capacity of 1,000 Lbs. @ 24" load center.

MAST

Two and Three Stage Options . . . . . Lift Heights 121" to 360"

SERVICE WEIGHT

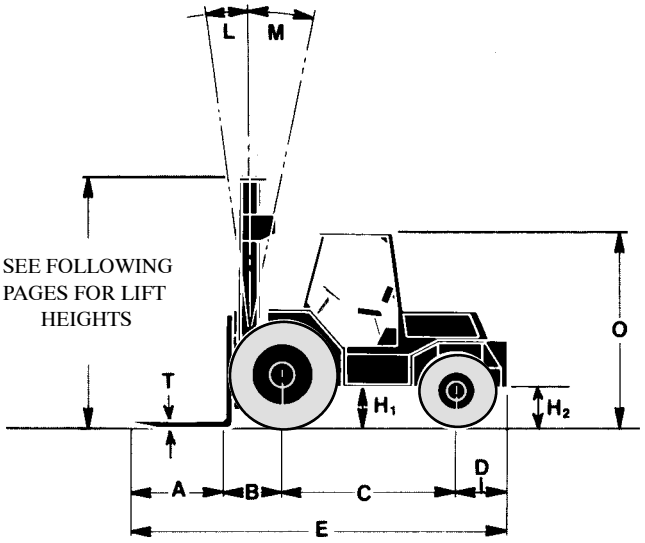
S402TC . . . . . 12,100 LBS.
S502TC . . . . . 12,720 LBS.
S602TC . . . . . 13,400 LBS.
(These maximum weights are applicable with a standard mast, standard forks and carriage. Weights may vary due to different mast applications. See the truck I.D. plate for exact weights.)

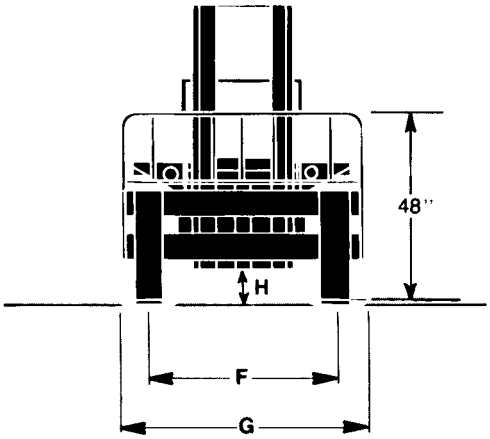
HYDRAULIC SYSTEM FILTRATION

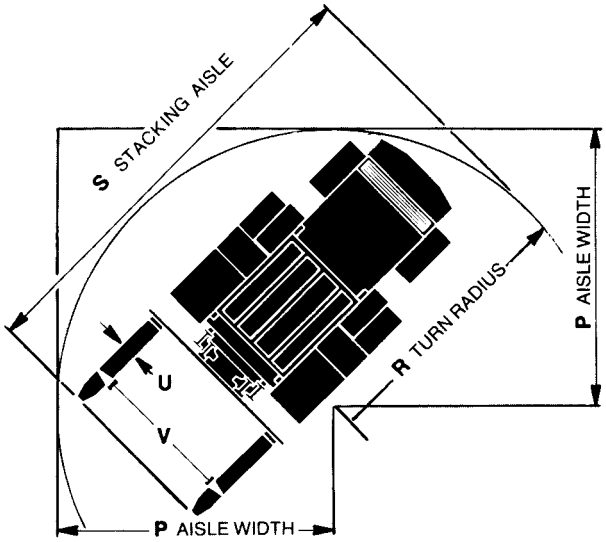
Operation Temperatures . . . . . -65 Deg. to +200 Deg. F.
Suction Screen (Inside Tank) . . . . . 100 Micron Element
Return Filter (Return Line) . . . . . 25 Micron Element

LIGHTING

Standard . . . . . Two White Sealed Beams Forward and
Two White Seal Beams Rearward







S402TC			S502TC	
	INCHES	MM	INCHES	MM
A	48	1219	48	1219
B	31	787	31	787
C	80.5	2045	80.5	2045
D	28.75	730	28.75	730
E	188.25	4782	188.25	4782
F	69	1753	69	1753
G	86	2185	86	2185
H	12	305	12	305
H_1	16	406	16	406
H_2	14	356	13.5	343
L^0	20^0		20^0	20^0
M^0	15^0	15^0	15^0	15^0
O	95	2413	95	2413
P	98.5	2502	118.75	3016
R	157.5	4000	160.5	4077
S	236.5	6007	239.75	6090
T	1.5	38	1.75	44
U	4	102	4	102
V	60	1524	60	1524

S602TC		
	INCHES	MM
A	48	1219
B	31	787
C	80.5	2045
D	28.75	730
E	188.25	4782
F	69	1753
G	86	2184
H	12	305
H_1	16	406
H_2	13	330
L^0	20^0	20^0
M^0	15^0	15^0
O	95	2413
P	121.75	3092
R	163.5	4153
S	244.5	6210
T	1.75	44
U	5	127
V	60	1524

10^0 Back Tilt On All Masts With 192" Lift

MACHINE OPERATING CAPACITIES

MFH	CAPACITY		
267.75”			
169”			3000#
168.6”		4000#	
S402TC 4000L.B. CAPACITY	4000#		
2 STAGE ROLLER MAST	MODEL 4705	MODEL 2104	MODEL 5304
O.H.L.	117.5”	117.5”	124”
M.F.H.	168.6”	168.6”	267”
F.F.H.	0”	0”	0”

MFH	CAPACITY		
267.75”			
169”			3500#
168.6”		5000#	
S502TC 4000L.B. CAPACITY	5000#		
2 STAGE ROLLER MAST	MODEL 4705	MODEL 2104	MODEL 5304
O.H.L.	117.5”	117.5”	124”
M.F.H.	168.6”	168.6”	267”
F.F.H.	0”	0”	0”

MFH	CAPACITY	
267.75”		
168.6”		3500#
S602TC 4000L.B. CAPACITY	6000#	
2 STAGE ROLLER MAST	MODEL 4705	MODEL 5304
O.H.L.	117.5”	124”
M.F.H.	168.6”	267”
F.F.H.	0”	0”

Machine operating capacities with optional masts shown are maximum load limits specified based upon a 10^0 back tilt, 10% side slope and load center 24” from face of forks.

LUBRICANTS

SHELL	MOBIL / FORD	SPECIFICATIONS	APPLICATIONS
Rimula X220 W40 Oil	Devac Super Oil	MIL-L-2104 C API CD	Engine Oil, Pedal Lubricant & Mast Chains Lubricant
	Ford 134D Oil	M. 2. C. 41A	Front Axle Oil
Donax TM Oil	Ford 134D Oil	M.2.C. 41A	Trans. & Steering Axle
Tellus T46 Oil	DTE 15 Oil	ISO 46	Hydraulic Tank
Alvania EP 2	Mobilux EP 2	MIL.G - 24 139	All Greasing Points
Retinax AM	Mobilgrease Super	Ford ESW MIC 87 A	Side Shift Grease
Donax TT Oil	Ford 134D Oil	M.2.C. 41A	Steering Oil

REQUIRED FLUIDS

1. Coolant: 50% antifreeze & 50% clean water . . . . . -Cooling system
2. Distilled Water . . . . . -Battery, as required
3. Fuel (Above 20^0F use No. 1 or 2 diesel, ... -Fuel tank
   below 20^0F use No. 1 diesel only.)

FILTER CHANGES

1. Engine oil filter . . . . . -Replace at 50 hours and every 150 hours thereafter.
2. Transmission oil filter . . . . . -Replace at 50 hours and every 300 hours thereafter.
3. Fuel filter element . . . . . -Replace at every 600 hours.
4. Air filter element . . . . . -Replace between 200 and 450 hours depending upon working conditions.
5. Hydraulic circuit filter . . . . . -Replace at 50 hours and every 300 hours thereafter.
6. Steering circuit filter . . . . . -Replace every 600 hours.

MAINTENANCE PRACTICES

1. Maintenance Provisions:
   Rough terrain trucks may become hazardous if maintenance is neglected. Therefore, maintenance facilities, trained personnel and procedures shall be provided.

2. Maintenance and Inspection:
   Maintenance and inspection of all trucks should be performed in conformance with the following recommended practices:
   a) A scheduled preventive maintenance, lubrication and inspection system should be followed.
   b) Only qualified and authorized personnel should be permitted to maintain, repair, adjust and inspect Rough Terrain Forklift trucks.
   c) Before starting inspections and repairs of trucks:
      1) Use chocks or other positive truck positioning devices.
      2) Block load engaging means, inner mast(s) or chassis before working on them.
      3) Before disconnecting any part of the engine fuel system, take precautions to eliminate any possibility of unintentional fuel escape.
      4) Before disconnecting any part of the engine fuel system of LP gas powered trucks, close LP tank valve and run engine until fuel in system is depleted and engine stops.
      5) Disconnect battery before working on the electrical system.
   d) Operation of the truck to check performance shall be conducted in an authorized area where safe clearance exists.
   e) Avoid fire hazards and have fire protection equipment present in the work area. Do not use an open flame to check level, or for leakage of fuel, electrolyte or coolant. Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.
   f) Properly ventilate work area, vent exhaust fumes and keep shop clean and dry.
   g) Handle LP gas tanks with care. Physical damage, such as dents, scrapes or gouges may dangenerously weaken the tank and make it unsafe for use.
   h) Brakes, steering mechanisms, control mechanisms, warning devices, stabilizers, lights, governors, lift over head devices, guards, safety devices, lift tilt mechanisms, and frame members shall be carefully and regularly inspected and maintained in a safe operating condition.
   i) Fuel systems shall be checked for leaks and condition of parts. Extra special consideration shall be given in the case of a leak in the fuel system. Action shall be taken to prevent the use of the truck until the leak has been corrected.
   j) All hydraulic systems shall be regularly inspected and maintained in good condition. Tilt cylinders, valve and other similar parts shall be checked to assure that ”drift” or leakage has not developed to the extent that it would create a hazard.
   k) The truck manufacturer’s capacity, operation and maintenance instruction plates, tags or decals shall be maintained in legible condition.
   l) Trucks shall be kept in a clean condition to minimize fire hazards and facilitate detection of loose or defective parts.

MAINTENANCE PRACTICES - CONT'D

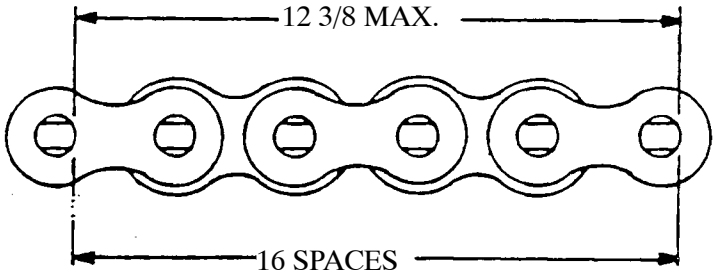
m) Modifications and additions which affect capacity and safe truck operation shall not be performed without the manufacturer's prior approval. Capacity, operation and maintenance instruction plates, tags or decals shall be changed accordingly.

n) Care shall be taken to assure that all replacement parts are interchangeable with the original parts and are of a quality at least equal to that provided in the original equipment.

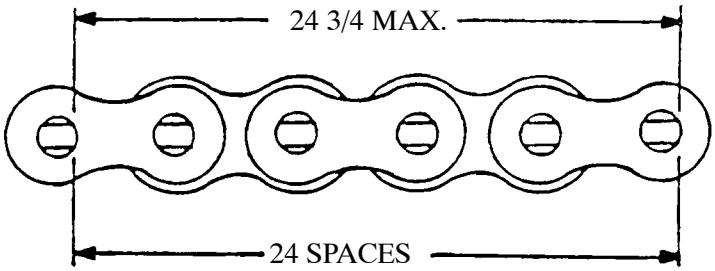
o) When removing tires, follow industrial safety practices. It is most important to deflate tire completely prior to removal. Following assembly of tires on multi-piece rims use a safety cage or restraining device while inflating.

p) Chain Wear:
Replace chain when stretch exceeds dimensions shown below:

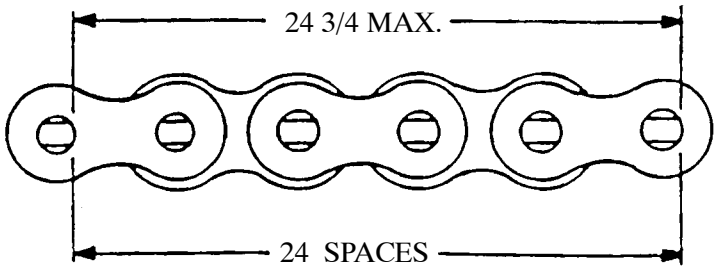
BL 634
(3/4" PITCH)
(#60)



BL844
BL834
(1" PITCH)
(#80)

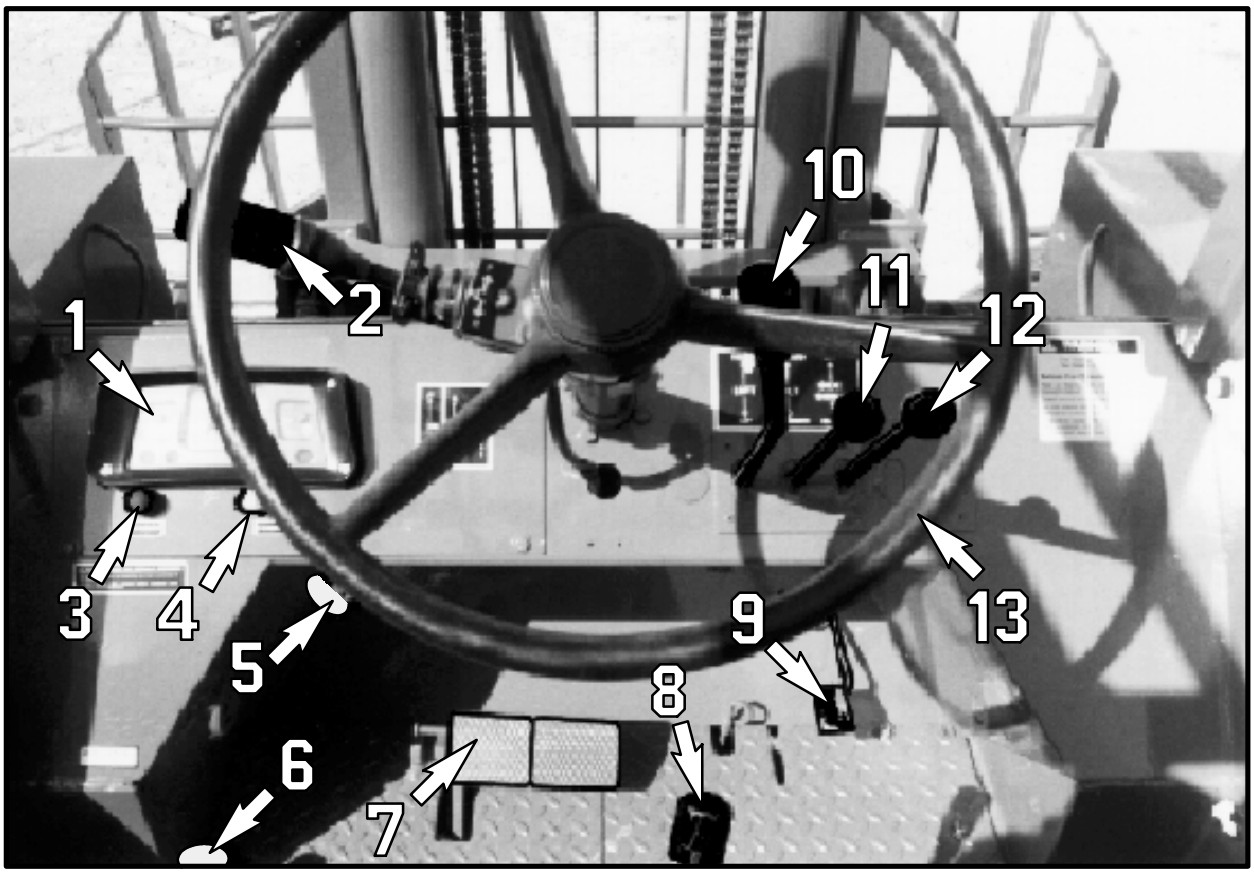


8-85
(1" PITCH)
(#80)



INSTRUMENTS AND CONTROLS

FIGURE 1



Item ***1***.) Instrument Panel
Item ***2***.) Forward - Reverse Lever
Item ***3***.) Horn Button
Item ***4***.) Light Switch
Item ***5***.) Ignition Switch
Item ***6***.) Differential Lock Pedal
Item ***7***.) Brake Pedal
Item ***8***.) Gear Shift Lever
Item ***9***.) Accelerator Pedal
Item ***10***.) Lift Lever
Item ***11***.) Tilt Lever
Item ***12***.) Side Shift Lever
Item ***13***.) Steering Wheel

The operator is advised to become familiar with the position and operation of all controls and instruments before operating the truck.

It is recommended that all instruments be checked for correct function immediately after the engine has warmed up, and at intervals while the truck is in use.

In case of a malfunction; stop the engine, investigate and correct the problem before continuing the operation of the truck.

WARNING! OPERATING THE TRUCK WITHOUT DUE REGARD OF THESE RECOMMENDATIONS COULD BE DANGEROUS! See the following pages for descriptions and use of controls.

INSTRUMENTS AND CONTROLS - CONT'D

FIGURE 1

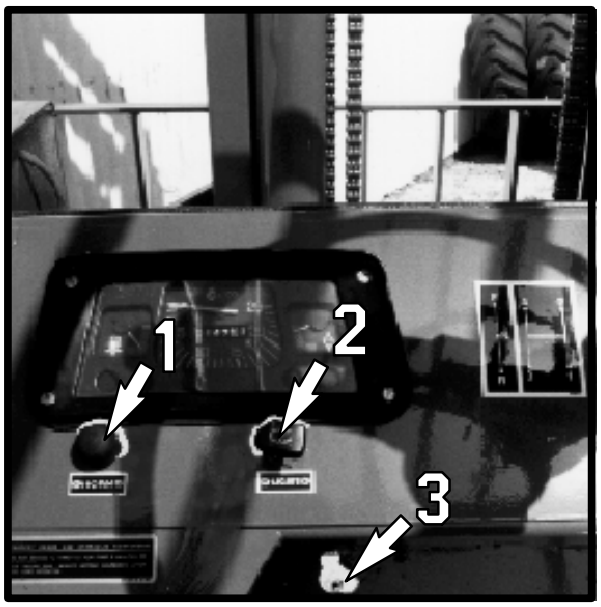
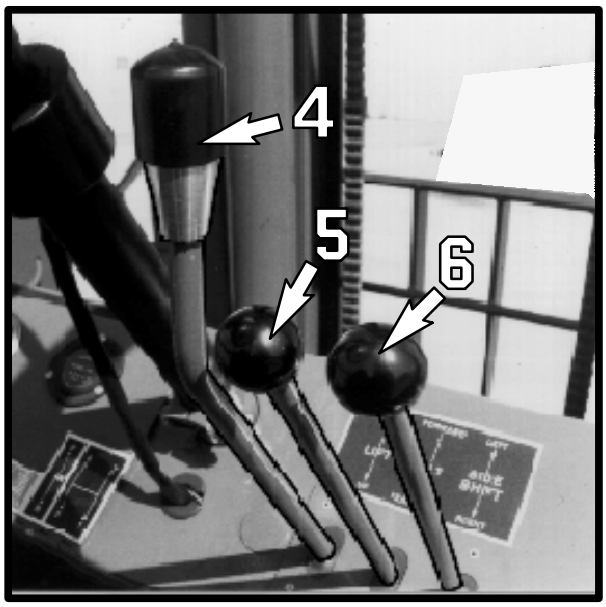


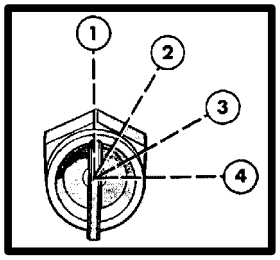
FIGURE 2



Item ***1***.) HORN BUTTON (See Figure 1) Pressing inward on button activates the horn.

Item ***2***.) LIGHT SWITCH (See Figure 1)
The light switch is the pull-push type. The positions of operation are:
a) Pushed-In - All lights off.
b) Intermediate position - Instrument lights only.
c) Pulled-Out position - All lights engaged.

Item ***3***.) KEY-START/STOP SWITCH (See Figure 1)
WARNING: Do not use ether with the glowplug. If in an emergency, it is necessary to use ether with the Thermostart installed, disconnect the terminal wire from the glow plug on the intake manifold and insulate the free end of the wire. (The glowplug is at the front of the manifold.)



The ignition switch is a key switch with four positions. The positions are:
1.) First position - *Electrical Equipment and Engine "OFF"*.
2.) Second position - *Accessories "ON"* (Truck operating position after engine starts.)
3.) Third position (Spring return) - *Glow-plug* for cold weather starting (0^0-40^0F); push in on key and hold for 15 seconds to activate.
4.) Forth position - *Engine starter position*; push in on the key at position **3** then turn to position **4**, hold until the engine starts, but no longer than 30 seconds at a time.

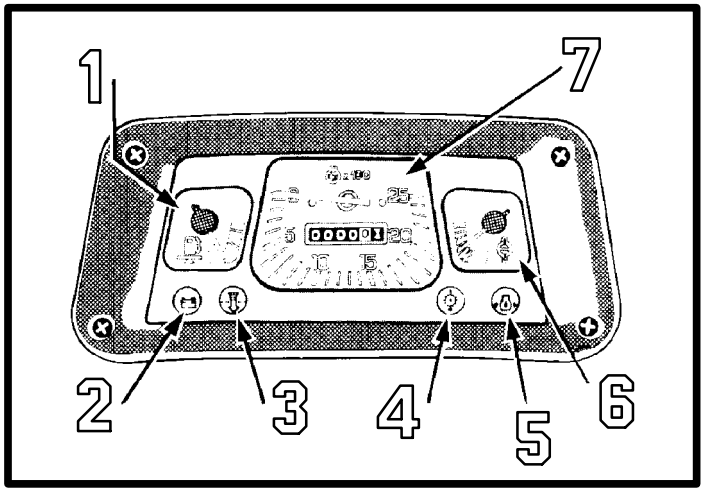
Item ***4***.) LIFT LEVER (See Figure 2)
This lever lifts the carriage forks when pulled back and lowers the forks when pushed forward.

Item ***5***.) TILT LEVER (See Figure 2)
This lever tilts the mast forward when pushed forward and tilts the mast back when pulled back.
WARNING: SEE "**GENERAL RULES**" FOR **TILTING RESTRICTIONS!**

Item ***6***.) SIDE SHIFT LEVER (See Figure 2)
This lever shifts the mast and load to the right when pulled back and to the left when pushed forward.
Note: Additional hydraulic valve levers can be added for optional hydraulic attachments.

INSTRUMENTS AND CONTROLS - CONT'D

FIGURE 1



Item ***1***.) FUEL GAUGE
Indicates the ***level of fuel in the tank*** and operates with the key switch in the 'ON' position.

Item ***2***.) ALTERNATOR WARNING LIGHT
Indicates the ***battery is not being charged*** and should go out when engine speed is increased above idle.

Item ***3***.) AIR CLEANER RESTRICTOR LIGHT
Will illuminate with engine running when the ***air cleaner requires servicing***.

Item ***4***.) CONVERTOR OVER-HEAT LIGHT
Illumination of this light requires the following immediate steps to be taken:

1. Shift lever to neutral, idle engine from 1,000 to 1,200 RPM'S for one minute.
2. Check engine coolant temperature gauge for engine over-heat.
3. If light fails to go out, stop engine. WARNING: ALLOW ENGINE TO COOL. Check the coolant level in the radiator.
4. Check the fan belt and the thermostat.
5. If the above items show nothing to be abnormal, restart the engine and idle at 1,000 to 1,200 RPM'S with the shift levers in neutral until the transmission has cooled and the light goes out. WARNING: If the light continues to come on at regular intervals, stop the engine and consult a service technician. ***Failure to do so could result in serious transmission damage.***

Item ***5***.) OIL PRESSURE GAUGE
Indicates ***low engine oil pressure*** after the engine has started. STOP THE ENGINE, check the engine oil level and/or the oil pressure (normal pressure is 60 to 70 PSI).

Item ***6***.) ENGINE COOLANT TEMPERATURE
Indicates temperature of the engine coolant. If needle enters the red sector with engine running, the ***engine is too hot***. Stop the engine and investigate the cause.

Item ***7***.) HOUR METER
This instrument records the number of operational hours on the truck. Use the hour meter as a guide to determine hourly service maintenance. The needle indicates engine RPM.

INSTRUMENTS AND CONTROLS - CONT'D

FIGURE 1

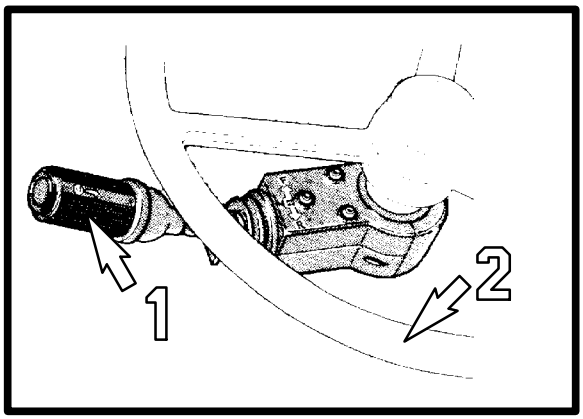
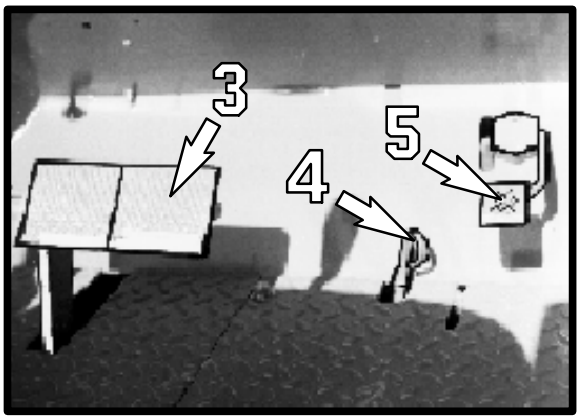


FIGURE 2



ITEM ***1***.) FORWARD-REVERSE LEVER (See Figure 1)

This lever selects the forward or reverse direction of travel of the truck:

a) To move forward, pull lever up out of neutral slot, then forward.

b) To travel in reverse, pull lever back.

NOTE: Forward-Reverse lever and gear select lever must be in the neutral position before the engine will start. For faster load positioning while the forklift is in a stationary position, shift the forward reverse lever to neutral.

Item ***2***.) STEERING WHEEL (See Figure 1)

Used by the operator to control the direction of travel of the truck by steering the REAR wheels. The power steering system is very sensitive to the movement of the steering wheel, therefore, always exercise CAUTION when making turns.

a) THE STEERING WHEEL STEERS THE REAR WHEELS!

b) WARNING: Do not add STEERING KNOBS or any add-on devices to the steering wheel.

Item ***3***.) SERVICE BRAKE PEDAL (See Figure 2)

The service brake pedal is used to apply the brakes on the front wheels simultaneously. The service brake is also used to help set the parking brake (see PARKING BRAKE, on following page).

NOTE: DO NOT ride the brakes while driving the forklift truck.

Item ***4***.) DRIVE AXLE OIL LEVEL DIPSTICK (See Figure 2)

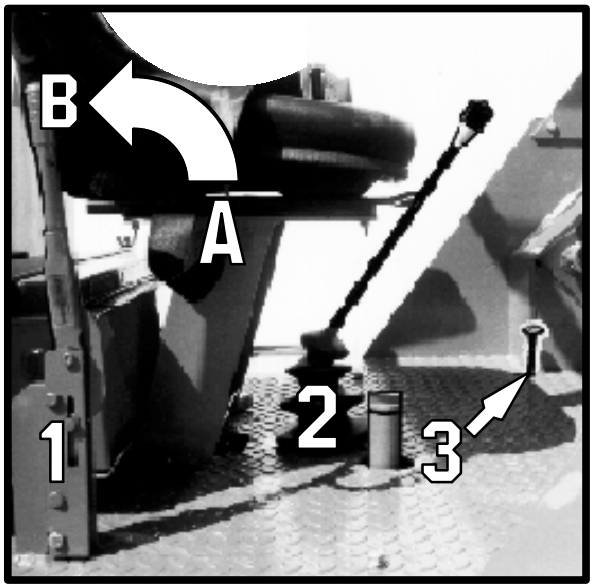
With the truck parked on a level surface check the oil level by removing the dipstick. The oil should be at the full mark or 1/4" above.

Item ***5***.) ACCELERATOR PEDAL (See Figure 2)

The accelerator pedal is used to control the engine RPM, the speed of the load being maneuvered (raising, lowering, etc.), and the speed of the truck.

INSTRUMENTS AND CONTROLS - CONT'D

FIGURE 1



Item ***1***.) PARKING BRAKE

This lever is located on the right side of the operator's seat. It is used to lock both front wheels simultaneously, with the forklift stopped. To set the parking brake, first apply the service brake, then pull the parking brake handle upward from position ***A*** to position ***B*** as shown by the arrow.

Item ***2***.) GEAR SHIFT LEVER

This lever is used to select the gear ratio required during operation of the truck. The lever is located in front of the operator's seat. Located on top of the gear shift lever is the transmission dump valve switch.

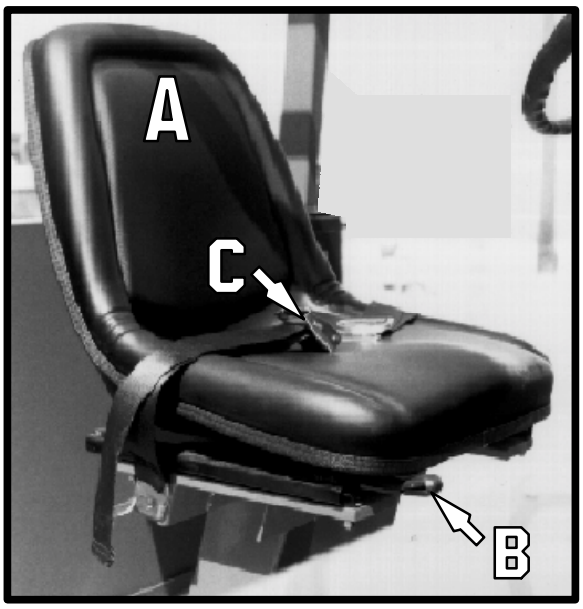
1. Place gear shift lever in the neutral position (note gear shift pattern decal on dash) to start engine.
   NOTE: The forward reverse lever must also be in neutral position to start engine.
2. After the engine has warmed, depress the transmission dump valve switch and move the gear shift lever to the desired position. If you have a problem engaging the gear shift lever, move the forward reverse lever into forward position for a moment, then back to the neutral position; then move gear shift to the desired position.
   NOTE: DO NOT grind the gears while shifting.

Item ***3***.) DIFFERENTIAL LOCK PEDAL

Under normal conditions the front drive wheels work independently of each other, allowing for turns, etc. When both wheels encounter slippery or muddy conditions, one wheel may "free-wheel". To temporarily prevent the "free-wheeling", push the differential lock pedal to the floor with your left foot. With the differential lock engaged, both front drive wheels turn together. Releasing the pedal will disengage the differential lock and return the drive axle to normal use.

DO NOT ENGAGE THE DIFFERENTIAL LOCK WHILE TURNING THE FORKLIFT!

FIGURE 1



OPERATOR'S SEAT AND SEAT BELT

The operator's seat (Item ***A***) adjusts backward and forward. To adjust the seat, move the locking lever (Item ***B***) to the left, slide the seat to the desired position and release the locking lever.

NOTE: Push the seat forward and backward to insure it is locked into position and the locking lever has returned to its locked position.

WARNING: Do not attempt to adjust the seat while the truck is moving.

WARNING: THE OPERATOR IS URGED TO BE PROPERLY RESTRAINED AT ALL TIMES USING THE SEAT BELT PROVIDED (Item ***C***). FAILURE TO USE THE SEAT BELT COULD RESULT IN A SERIOUS ACCIDENT AND/OR INJURY TO THE OPERATOR OF THE TRUCK.

FOUR WHEEL DRIVE ENGAGEMENT (4WD ONLY, not shown.)

The 4WD Feature is for use on rough, unimproved terrain such as loose dirt, sand or muddy areas. Use the 4WD Feature only when REQUIRED. To ENGAGE the four wheel drive feature, pull up on the "T" handle control located on the left side of the gear selection lever. To DISENGAGE the steer axle drive, simply push the "T" handle down. NOTICE: Using the 4WD Feature on pavement, asphalt or other hard packed surfaces causes excessive wear on the steer axle and steer tires.

BEFORE STARTING A NEW TRUCK

BEFORE STARTING A NEW TRUCK MAKE THE FOLLOWING CHECKS:

LUBRICATION

Verify that all the correct grades of oil and greases required are applied or installed.

BREAK-IN OILS

The truck is delivered with break-in oil in the engine. This oil, and the engine oil filter, should be changed during the first 50 hours of service by the dealer.

NOTE: USE ONLY THOSE OILS AND LUBRICANTS SPECIFIED IN **LUBRICANTS** SECTION.

AIR CLEANER

Verify that the air cleaner is undamaged and that all connections are secure and in place.

NOTE: NEVER RUN THE ENGINE WITH THE AIR CLEANER REMOVED OR DAMAGED.

COOLING SYSTEM

Do not start the engine until the radiator coolant level has been checked and brought to the proper level, if necessary.

HYDRAULIC SYSTEM

Verify that all hoses, connections and hydraulic tubes are secure and tight.

Verify that the hydraulic oil level in the hydraulic tank is correct.

WHEELS AND TIRES

Verify that all wheels are secure, undamaged, torqued correctly and that all tire pressures are correct. ALSO, RE-TORQUE ALL WHEEL NUTS AFTER FIRST 50 HOURS OF OPERATION.

FUEL SYSTEM

Verify that all fuel lines are secure and tight. Verify that the fuel shut-off valve is open. Do not allow the engine to run out of fuel, doing so puts air into the fuel system, requiring the fuel filter to be drained and the fuel system to be bleed of air.

ELECTRICAL CIRCUIT

Check the level of the electrolyte in the battery. Verify that the battery is secure in it's compartment and that the connecting terminals are clean. Check the truck for loose or disconnected wiring.

BEFORE OPERATING A NEW TRUCK, BE SURE YOU HAVE FAMILIARIZED YOURSELF WITH THE OPERATION AND FUNCTION OF ALL THE INSTRUMENTS AND CONTROLS.

DRIVING THE TRUCK

STARTING THE ENGINE

1. Check the level of the fuel, engine oil, coolant and hydraulic oil.
2. Verify that the forward/reverse and gear selection levers are in the neutral position.
3. Start the engine as follows:
   a) First Position- Insert the key in the ignition switch and turn to the contact position. In this position the alternator warning light will illuminate.
   b) Second Position- Pre-heat supply to glow plugs.
   c) Third Position- Engage the starter by pushing in on the key and turning clockwise to the start position. Release the key when the engine starts. The alternator warning light should go out.
   NOTE: Always use the correct type ignition key as supplied with the truck.
   NOTICE: DO NOT push or tow the forklift to start the engine, this will damage the transmission.

DRIVING THE TRUCK

1. Run the engine at a fast idle for a few minutes, allowing it to warm up.
2. Lift the forks clear of the ground.
3. Engage first gear.
4. Release the parking brake.
5. Move the forward/reverse lever to the direction of travel and accelerate gently.
6. The power steering system is very sensitive to movement of the steering wheel, turn the steering wheel progressively and not abruptly.
7. When changing the direction of travel, stop the truck, reposition the forward/ reverse lever and then proceed in the opposite direction.
   NOTE: DO NOT CHANGE THE DIRECTION OF TRAVEL WHILE THE TRUCK IS MOVING. Do not operate the forward/ reverse lever while the engine is stopped.

TO STOP THE TRUCK

1. Remove foot from the accelerator pedal.
2. Apply the service brake progressively as required to bring the truck to a halt.
3. Place the forward/ reverse lever in the neutral position.
4. Apply the parking brake while engaging the service brake.
5. Place the gear selector lever in the neutral position.
6. Lower the forks or attachments until they are resting on the ground.
7. Switch off the ignition and remove the key.
   NOTICE: Stopping a hot engine overheats certain components, affecting engine life and causing early failure. Before stopping a hot engine, unload the truck and allow it to run at a high idle speed for a few minutes. Allow the oil and coolant to circulate, reducing the temperature of the moving parts in the engine and transmission.

PARKING THE TRUCK

PRECAUTIONS: Park the forklift in a designated area, out-of-traffic, on level ground. Do not block access to emergency fire equipment. If required to park on an incline, position the forklift at right angles to the slope, set the parking brake, lower the forks to the ground, and block the wheels.

SERVICING SCHEDULE

Service Interval	Service Item	CHECK	CLEAN	GREASE	LUBRICATE	DRAIN	ADJUST	REPLACE
Daily Or Every 10 hours service	Engine Oil Level	X					X	
	Radiator Coolant Level	X					X	
	Fuel Tank	X					X	
	Radiator & Oil Coolers	X	X					
	Hydraulic Tank	X					X	
	Chains	X						
Every 50 hours service	See **EVERY 50 HOURS SERVICE**							
Every 150 hours service	Engine Oil							X
	Engine Oil Filter							X
	Air Filter		X					
	Transmission Oil Level	X						
	Parking Brake	X					X	
	Brake System	X					X	
Every 300 hours	Mast Chains	X	X	X				
	Fuel Filter Element							X
	Transmission Filter							X
	Hydraulic Filter							X
Every 600 hours service	Valves Clearance - (See your dealer)	X					X	
	Injectors - (See your dealer)	X					X	
	Rear Wheel Hub Bearings (2 Wheel Drive)	X	X	X			X	
	Hydraulic Oil					X		X
	Transmission Oil					X		X
Every 1,200 hours service	Drive Axle Oil					X		X
	Steer Axle Oil (4WD Only)					X		X
Every 2,400 hours service	Fuel Tank Outlet Screen	X	X					
	Hydraulic Oil Tank Outlet Screen	X	X					
Seasonal	Radiator Coolant					X		X

DAILY OR EVERY 10 HOURS SERVICE

FIGURE 1

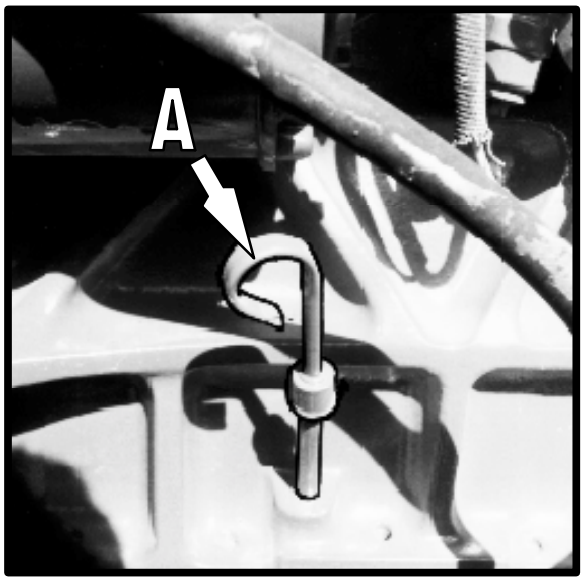
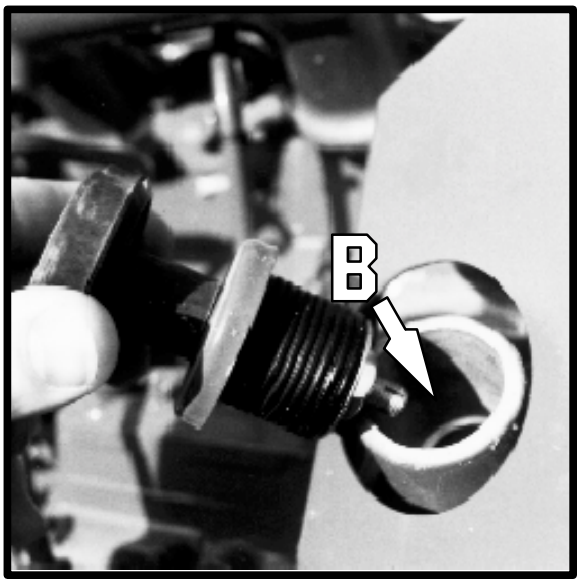


FIGURE 2

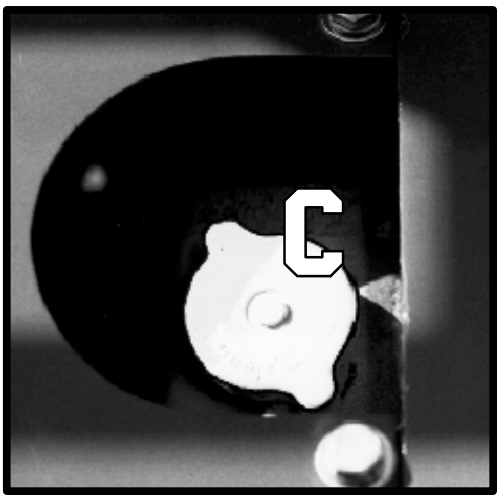


ENGINE OIL

1. Secure the forklift on level ground, stop the engine and wait one minute for the oil to settle.
2. Check the oil using the dip stick shown on the left side of the engine (Figure 1, Item ***A***).
3. Add oil, if needed, through the filler tube shown on the left side of the engine (Figure 2, Item ***B***). For correct grade of oil, see **LUBRICANTS**.

ENGINE COOLANT

FIGURE 3



1. WARNING: THE ENGINE MUST BE COOL BEFORE REMOVING THE RADIATOR CAP!
2. Remove the radiator cap (located near the rear of the forklift) to check the coolant level, it should be 1/4" above the radiator core. Add clean coolant as required (Figure 3, Item ***C***).
3. Occasionally apply a thin coating of vaseline to the cap seating to aid in its installation and removal.

NOTE: Engine coolant should be a mixture of 50% clean water and 50% premium grade antifreeze. At the approach of winter, see **SEASONAL MAINTENANCE**.

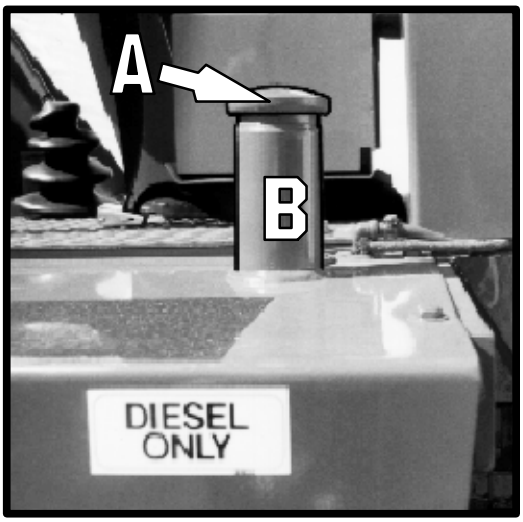
DAILY OR EVERY 10 HOURS SERVICE - CONT'D

FUEL TANK

1. Secure the Forklift on level ground when fueling. NO SMOKING. Keep the filler cap area clean (Figure 1, Item ***A***).
2. Never take the cap off or refuel with the engine running or hot.
3. Fill the tank at the end of each working day to avoid overnight condensation. Fill the tank through the filler neck with clean diesel fuel, use a filter if necessary (Figure 1, Item ***B***).

ABOVE 20^0F USE NO. 1 OR 2 DIESEL FUEL.
BELOW 20^0F USE NO. 1 DIESEL FUEL ONLY.
Do not over-fill the tank, allow room for expansion.
Wipe up any spills after filling tank.

FIGURE 1

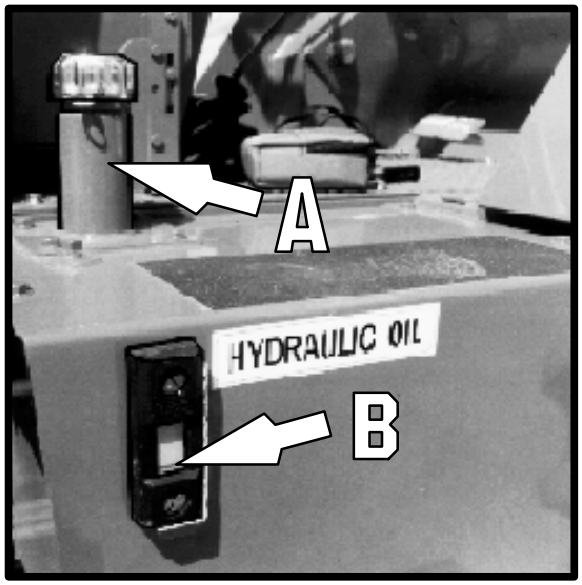


HYDRAULIC TANK

1. Secure the truck on level ground. Add the recommended hydraulic oil through the filler neck, see **LUBRICANTS.** (Figure 2, Item ***A***).
2. Keep hydraulic fluid above the red line on the sight glass located on the hydraulic tank. Do not overfill (Figure 2, Item ***B***).

CAUTION: Never fill the tank with the engine running or with mast in the vertical raised position. Wipe up any spills after filling tank.

FIGURE 2



EVERY 50 HOURS SERVICE

SERVICE CHECK:

1.) Sheet metal, paint, decals, etc...

2.) Mast and truck frame for damages.

3.) Lube all truck and mast grease fittings.

4.) Tire pressures, wheels and lug nuts.

5.) Exhaust system, muffler, brackets, etc.

6.) Fan belt, tension and condition.

7.) Engine coolant, radiator, hoses.

8.) Overhead guard and connecting bolts.

9.) Battery, electrolyte level.

10.) Electrical cables, wires and terminals.

11.) Fuel system for leaks, damages.

12.) Fuel filter system.

13.) Hydraulic system for leaks.

14.) Air cleaner/filter and hose connections.

15.) Engine starting safety switches.

16.) Lights & gauges.

17.) Service brake and park brake.

18.) Steering control and response.

19.) Engine throttle/governor operation.

20.) Engine maximum no-load idle speed.

21.) Hydraulic system operation:

a) Tilt cylinder response.

b) Side shift cylinder response.

c) Lift cylinder and mast response:

c1) Empty _____ c2) Loaded _____

d) Dump valve operating response.

22.) Differential lock operation.

23.) Engine oil.

24.) Transmission oil level.

25.) Drive axle oil level.

26.) Adjust parking brake.

27.) Steer axle breather (4WD only).

28.) Steer axle oil level (4WD only).

29.) Steer axle hub oil level (4WD only)

30.) Tilt cylinder pins and snap rings.

31.) Mast mount bar and cap head bolts.

32.) Lube mast mount bar.

33.) Mast chain connections.

34.) Lube mast chains.

35.) All optional equipment and accessories.

FIGURE 1

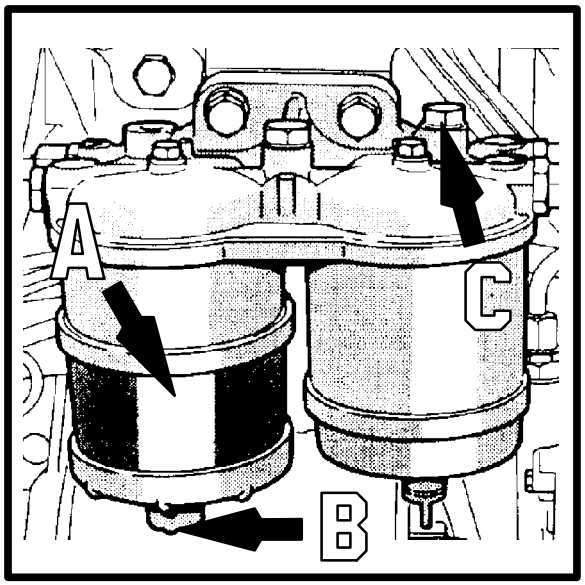
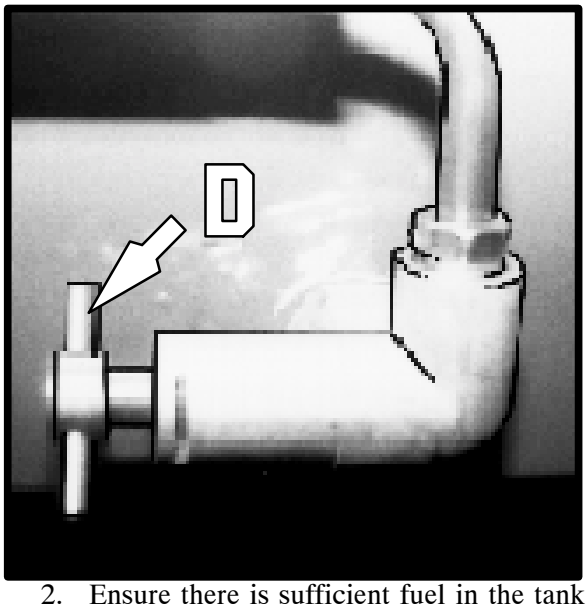


FIGURE 2



2. Ensure there is sufficient fuel in the tank and that the fuel shut-off valve is open (Figure 2, Item ***D***).

Slacken the bleed screw (Figure 1, Item ***C***) until fuel free of air bubbles flows from the bleed screw hole then tighten the bleed screw.

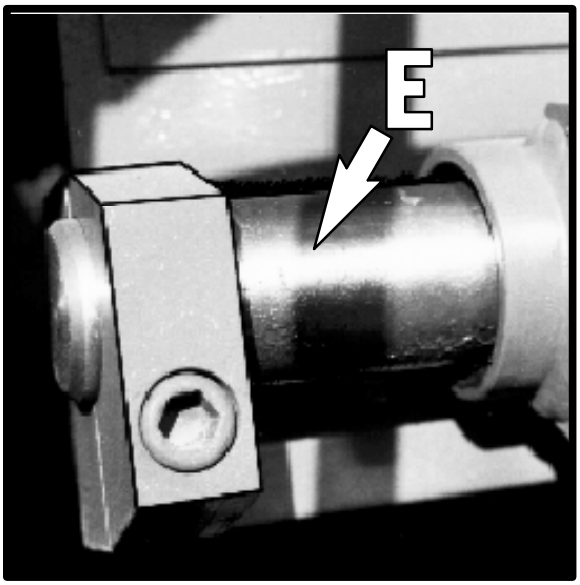
WATER/SEDIMENT SEPARATOR AND FILTER

1. If water or sediment can be seen in the glass bowl (Figure 1, Item ***A***), turn the drain plug (Figure 1, Item ***B***), counter-clockwise and allow the contaminated fuel to drain away. Re-tighten the plug

MAST MOUNT BARS

1. It is recommended that both mast mount bars be kept free of debris by cleaning and lubricating on a regular basis (Figure 3, Item ***E***).

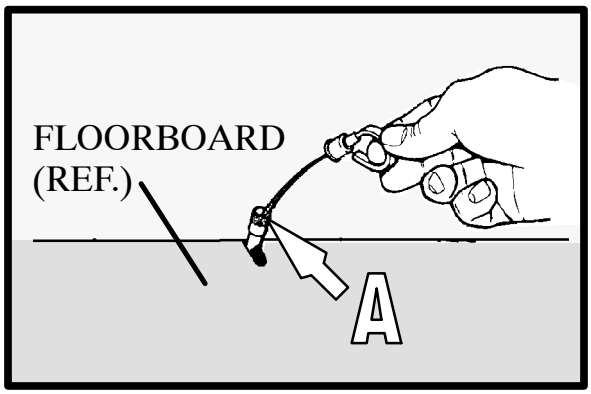
FIGURE 3



CAUTION: Always park and secure the Forklift on level ground before attempting to clean or lubricate mast mount bars. Never lubricate the mast bars while the Forklift is running or another individual is in the operator's control area.

EVERY 50 HOURS SERVICE - CONT'D

FIGURE 1



1. With the truck parked on a level surface check the oil level with the dipstick (Figure 1, Item ***A***).

The oil should be at the full mark or 1/4" above.

2. If the oil level is low, remove the front truck cover (located between the tilt cylinders). Through the rectangle access hole locate the two filler plugs on top of the drive axle (Figure 2, Item ***B***).

Remove either plug and add oil of the specified type (see **LUBRICANTS**).

3. Bring the oil level up to the full mark on the dipstick as required. Do not overfill. Install plug.

BATTERY ELECTROLYTE LEVEL

WARNING! The battery contains a sulphuric acid electrolyte which can cause severe burns and produce explosive gases. **AVOID CONTACT** with the skin, eyes or clothing. Treatment is as follows:

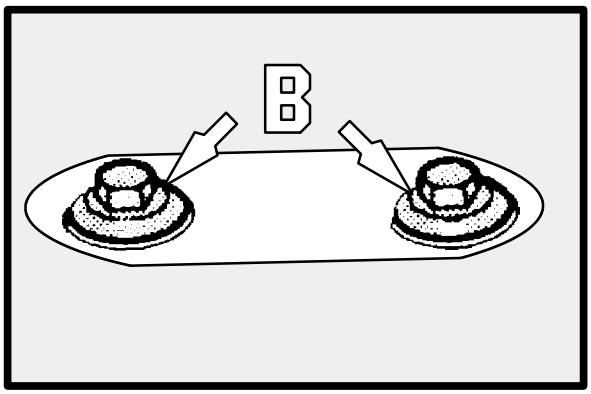
Skin - flush with cold water.

Eyes - flush with cold water for 15 minutes and get prompt medical attention.

Internal - drink large quantities of water or milk followed by milk of magnesia, beaten eggs or veg- etable oil.

DRIVE AXLE OIL LEVEL

FIGURE 2



Call a doctor immediately!

Keep sparks, flames and cigarettes away. Do not produce sparks with cable clamps when charging the battery or starting the engine with a slave battery. Wear eye protection when working near batteries. Ventilate when charging or using in an enclosed space. Ensure vent plugs are correctly installed and tight.

1. The battery is located behind the operator's seat. For access, loosen the two wing nuts, remove the bar and cover plate.

a) If necessary, remove the battery and clean the terminals and casing with a weak solution of am-

monia or sodium bicarbonate (baking soda) in water. Insure the solution does not get into the

battery. Always keep the battery terminals tight and free of corrosion.

b) Remove the vent plugs and check the electrolyte level which should be 1/4" above the separator

plates. If necessary top up with distilled water and replace the plugs. In cold climates this

operation should be carried out just before using the truck. The charging action will mix the

water with the electrolyte and so prevent freezing of the battery

EVERY 50 HOURS SERVICE - CONT'D

STEERING AXLE HUB OIL LEVEL (4WD ONLY)

1. Position the right-hand rear wheel hub with the level/filler plug (Figure 1, Item ***A***) in the horizontal position.
2. Remove the level/filler plug and if necessary add oil until it flows from the filler plug opening. See **LUBRICANTS**.
3. Re-install the plug and repeat the operation on the left-hand side.

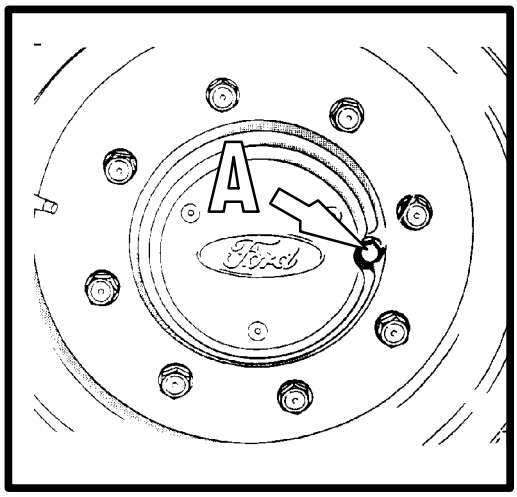


FIGURE 1

STEERING AXLE OIL LEVEL (4WD ONLY)

1. Secure the truck on level ground.
2. Locate the level-filler plug on the rear right hand side of the steering axle.
3. Remove the level-filler plug (Figure 2, Item ***B***) and ensure that the oil reaches the level/filler plug opening.
4. If necessary, add oil through the opening (see **LUBRICANTS**).
   Install the level/filler plug.

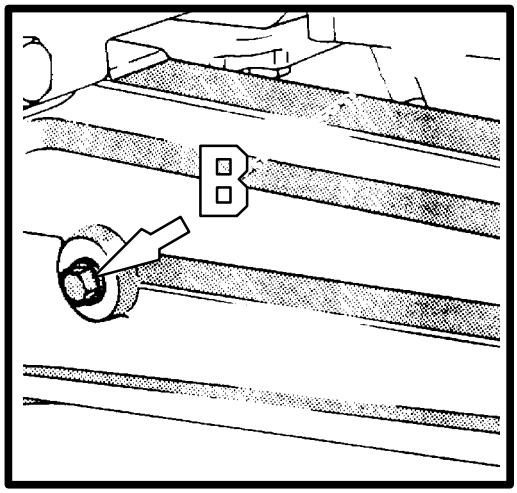


FIGURE 2

STEERING AXLE BREATHER (4WD ONLY)

When cleaning the truck, particularly if using a hose or high pressure washer, avoid spraying water directly at the steer axle breather. Water entering the axle casing will contaminate the oil and may cause severe damage to axle and differential components.

1. Check that the steer axle breather (Figure 3, Item ***C***) is clear of dirt, etc.

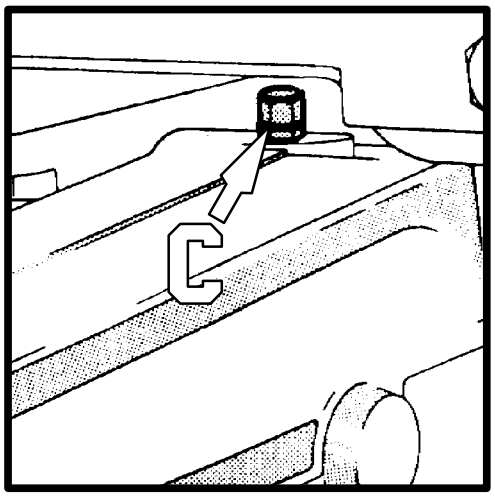
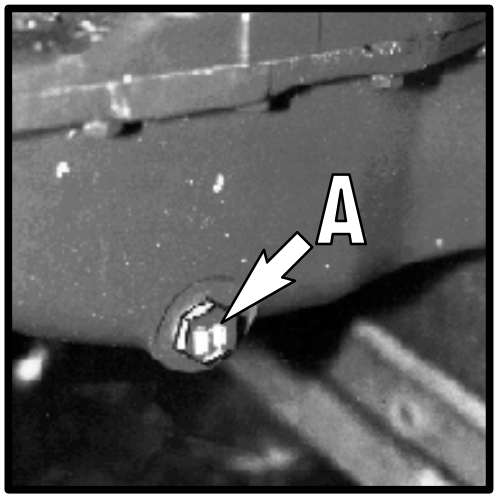


FIGURE 3

EVERY 150 HOURS SERVICE

CHANGING ENGINE OIL

FIGURE 1



1. Drain and replace the engine oil and filter.
   a) Run the engine for a few minutes until the oil reaches it's normal operating temperature, then stop the engine.
   b) Place a suitable container under the drain plug (Figure 1, Item ***A***).
   c) Loosen and remove the drain plug and allow the oil to drain into the container.

WARNING: Use extreme caution when removing the oil drain plug and the oil filter! The oil being drained is HOT; protect your hands, face and eyes from splatter and spills. Avoid prolonged exposure to the skin.

2. To replace the oil filter (Figure 2, Item ***B***).
   a) Unscrew and discard the oil filter and its seal. (Located on right side of engine.)
   b) Clean the engine block seal surface, then install the new filter and seal.

IMPORTANT: Hand-tighten the oil filter only, do not over-tighten.

3. After replacing the oil filter, install and tighten the drain plug. Figure 1, Item ***A***.
   a) Add new engine oil through the filler tube (located on the left side of the engine). Figure 3, Item ***C***. See **LUBRICANTS**. OIL CAPACITY: Engine crankcase w/filter = 7 quarts.
   b) Run the engine for a few minutes to circulate the oil.
   c) Stop the engine and allow the oil to drain back to the sump before checking the level with the dipstick.

FIGURE 2

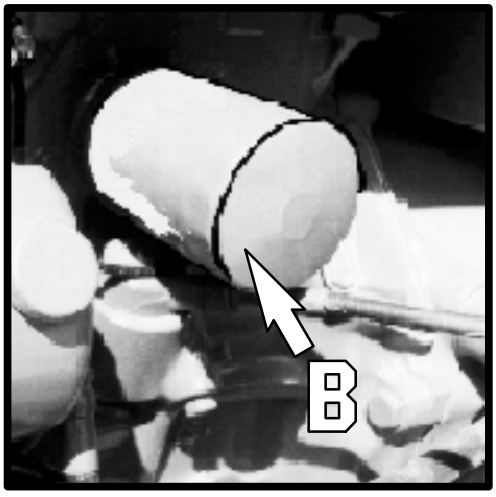
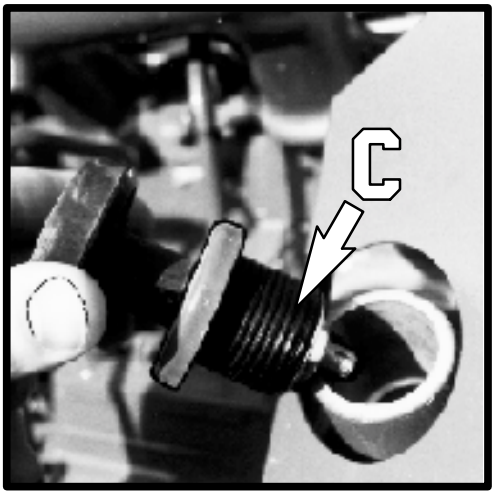


FIGURE 3



EVERY 150 HOURS SERVICE - CONT'D

CHANGING THE AIR CLEANER ELEMENT

The air cleaner will only fulfill its function if properly maintained. Poor maintenance will cause loss of power, excessive fuel consumption and a reduction in engine life. IMPORTANT: Replace the air filter when the restriction indicator light illuminates while the engine is running. Unnecessary cleaning exposes the element to handling damage which could allow dust and dirt to by-pass the filtering process and cause excess engine wear.

FIGURE 1

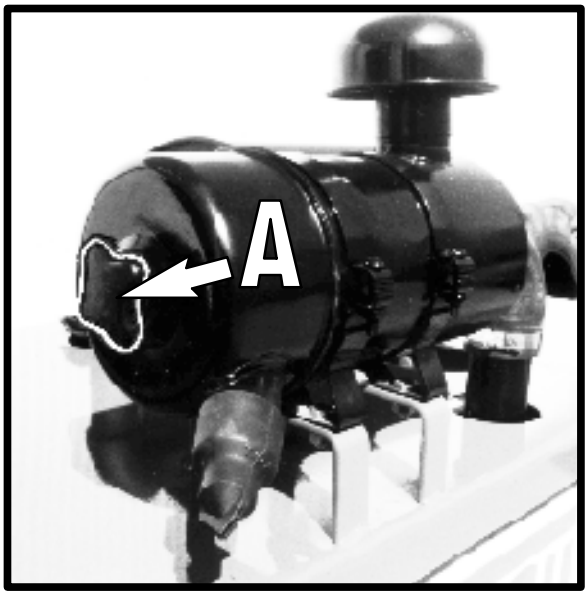
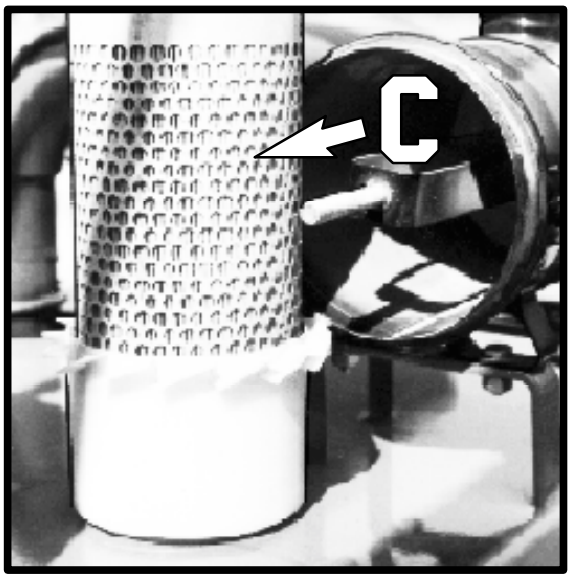


FIGURE 2

IMPORTANT: Never run the engine with the air cleaner removed or damaged.

1.) Loosen the knob to remove the air filter housing cover (Figure 1, Item ***A***).
2.) After the housing cover is removed, remove the air filter wing nut (Figure 2, Item ***B***).
3.) Now remove the air filter element (Figure 3, Item ***C***).
4.) Reverse the previous procedures for installation of the new air filter.

FIGURE 3

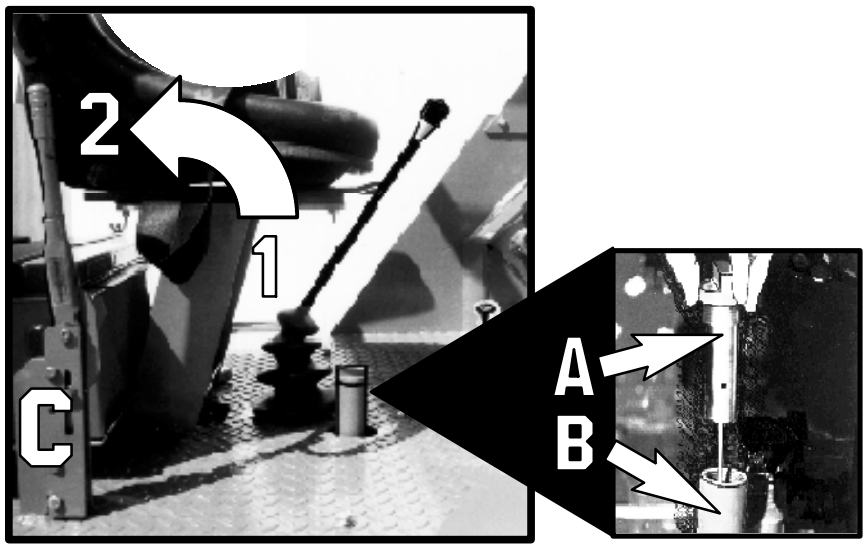


EVERY 150 HOUR SERVICE - CONT'D

TRANSMISSION OIL LEVEL

FIGURE 1

1.) Secure the truck on level ground.
2.) Check the transmission oil level using the dipstick located in the filler cap (Item ***A***).
3.) The oil should be on the full mark of the dipstick.
4.) Fill the transmission with recommended oil through the filler tube (Item ***B***).



NOTE: Refer to **LUBRICANTS**, for recommended transmission oil.

PARKING BRAKE (Item ***C***.)

This lever is located on the right side of the operator's seat. It is used to lock both front wheels simultaneously, with the forklift stopped. To set the parking brake, first apply the service brake, then pull the parking brake handle upward from position ***1*** to position ***2*** as shown by the arrow (Figure 1). FOR ADJUSTMENT:

a) Secure forklift on level ground. Insure the park brake is fully released (position ***1***).

b) To increase park brake tension, turn the cap on the top of the lever in a clockwise direction, to decrease tension, turn cap counter-clockwise.

NOTICE: DO NOT apply service brake while adjusting parking brake.

EVERY 150 HOURS SERVICE OR AS REQ'D - (CONT'D)

ADJUSTING THE SERVICE BRAKES

1.) Brake adjustment is correct when "free pedal" travel of the brake pedal measures 3/4" to 1" (See Figure 1).
2.) If the "free pedal" travel exceeds this dimension, adjust the brake linkage as follows:
   a.) Chock the drive wheels of the truck and verify that the parking brake is fully disengaged.
   b.) Two adjusting points are utilized in each linkage arrangement, i.e.- major adjustments are made at the threaded clevis end of the "pull rod" (Figure 1, Item ***A***). Minor adjustments are made at the threaded hex turnbuckle, see **NOTE** (Figure 1, Item ***B***).
   c.) Loosen the lock nuts at these two locations, rotate the clevis end and/or turnbuckle until the correct free travel is obtained at the pedal.
   d.) Re-tighten the lock nuts at both adjusting locations.
   e.) Repeat steps one through four to the similar adjustment items on the other side of the transmission case.

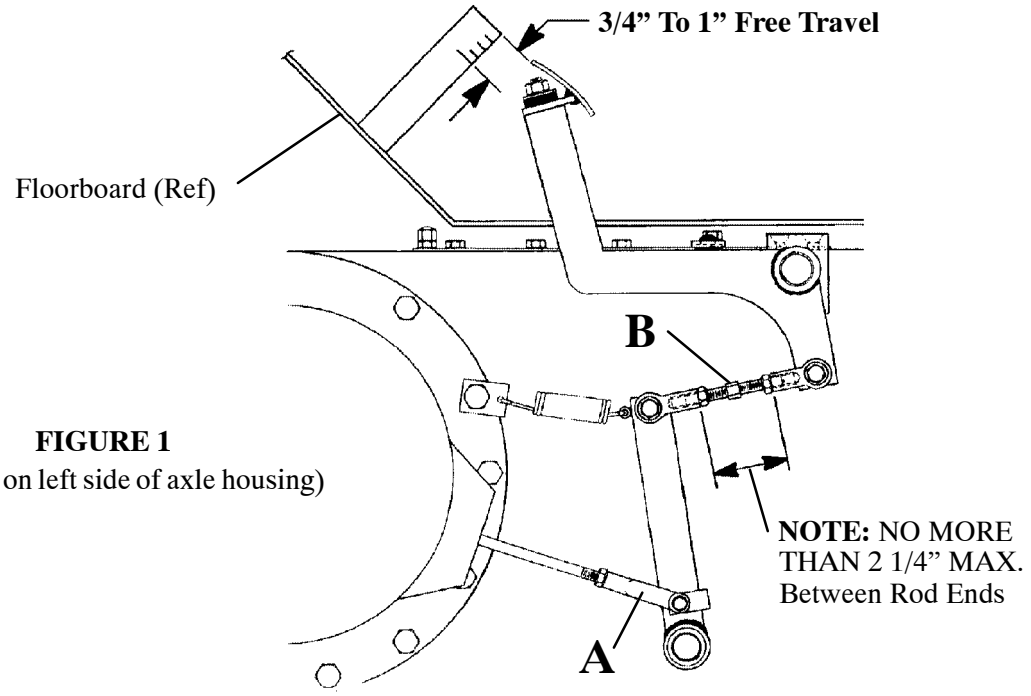


FIGURE 1
(As seen on left side of axle housing)

NOTICE:

When the brake linkage is properly adjusted, braking pressure will be applied equally to the front wheels. After making the adjustments, carefully road test the truck. If the truck pulls or turns to one side when applying the brakes, more adjusting is required to balance the brakes. When the brake linkage can no longer be adjusted, and the truck continues to pull or turn to one side, remove the truck from service and repair the brakes.

EVERY 300 HOURS SERVICE

MAST LIFT CHAINS

Inspect, clean and lubricate the mast chains:

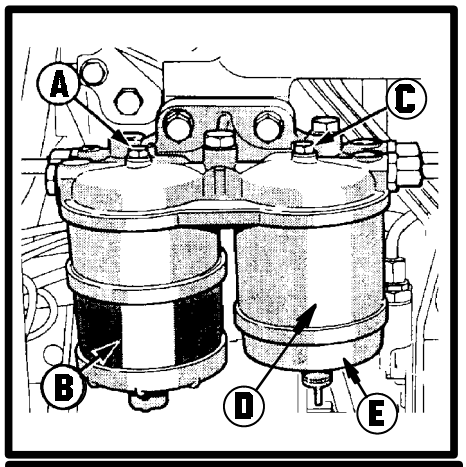
1.) Inspect the mast chains for damage and wear (see **MAINTENANCE PRACTICES**).
2.) Use a stiff nylon brush and clean diesel fuel to thoroughly clean the mast chains.
CAUTION: Use adequate hand and eye protection while cleaning the chains!
3.) Use a soft brush and clean diesel fuel to rinse the chains.
4.) Dry the chains with a clean rag and air jet dry.
5.) Lubricate the chains moderately with a soft brush and new oil (see **LUBRICANTS**).
6.) Remove excess oil with a clean rag.

NOTE: The chains must be serviced through-out their entire length.

REPLACE THE FUEL FILTER ELEMENT

1.) Close the fuel tank shut-off valve.
2.) Clean the exterior of the filter housing to keep dirt from entering the system.
3.) Unscrew the retaining bolt (Figure 1, Item ***A***) and remove the glass bowl (Item ***B***). Wash out the bowl using a brush and clean fuel, re-install using new sealing rings.
4.) Unscrew the retaining bolt (Item ***C***) and remove the filter element (Item ***D***) and bowl (Item ***E***). Wash out the bowl with a brush and clean fuel. Install a new filter and sealing rings.
5.) Open the fuel tank shut-off valve and bleed the fuel system.

FIGURE 1



BLEEDING THE FUEL SYSTEM

Loosen the bleed screw (Figure 2, Item ***F***) on the injection pump and operate the starter motor to crank the engine. When fuel free of air bubbles flows from the bleed screw tighten the screw. **IMPORTANT:** DO NOT crank the starter motor continuously for more than 30 seconds, doing so may cause starter motor failure.

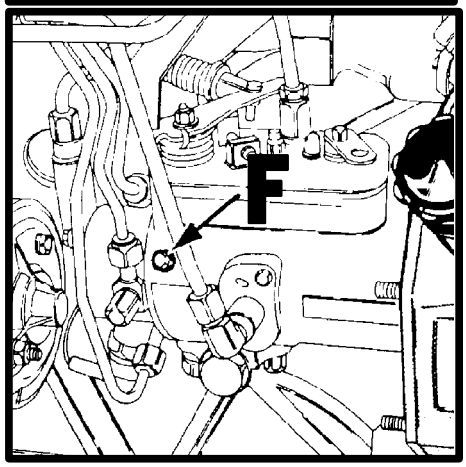


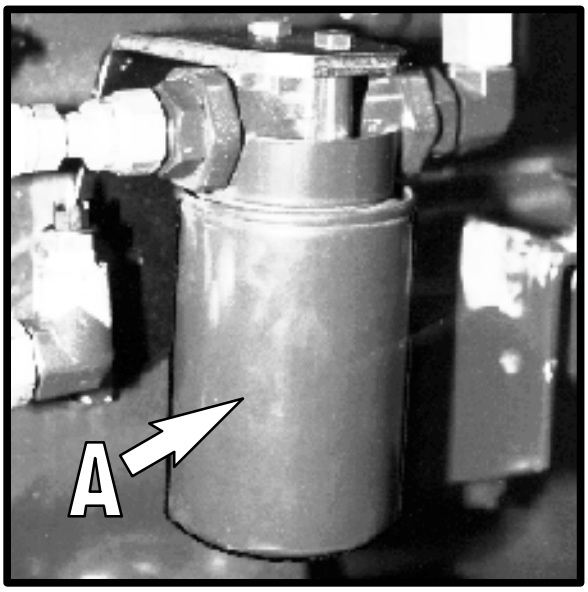
FIGURE 2

EVERY 300 HOURS SERVICE - (CONT'D)

REPLACE THE TRANSMISSION OIL FILTER

1.) Locate the filter on the right side of the transmission (Figure 1, Item ***A***).
2.) Remove and discard the filter and seal.
3.) Clean the face of the manifold.
4.) Lubricate the new oil seal with clean transmission oil and install the filter hand-tight. Do not over-tighten!
5.) Operate the truck to purge air from the system and recheck the oil level. See **EVERY 50 HOURS SERVICE** for transmission oil level.

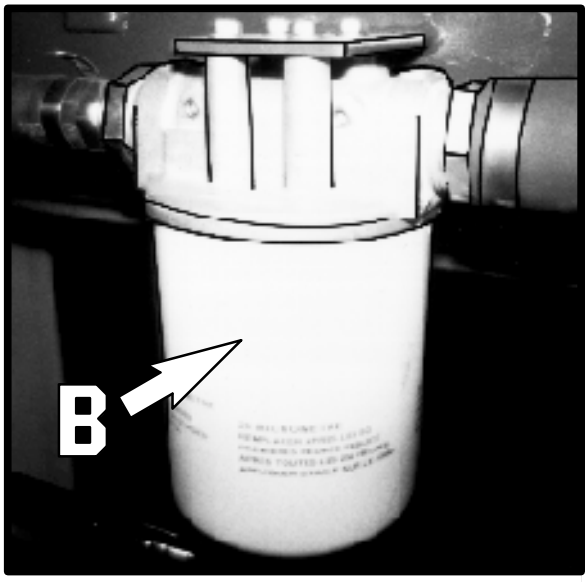
FIGURE 1



REPLACE THE HYDRAULIC OIL FILTER

1.) The filter is located on the frame, below the operator's right foot (Figure 2, Item ***B***).
2.) Remove and discard the filter and seal.
3.) Clean the face of the manifold.
4.) Lubricate the oil seal of the new filter with clean hydraulic oil and install the filter hand-tight. Do not over-tighten!
5.) Operate the truck to purge air from the system and recheck the oil level (see **EVERY 50 HOURS SERVICE**).

FIGURE 2



EVERY 600 HOURS SERVICE

CHECK VALVE CLEARANCE

Consult your dealer.

CHECK INJECTORS

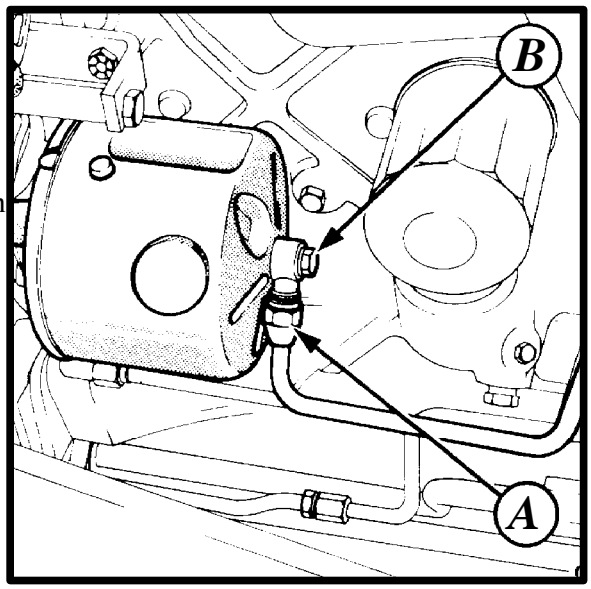
Consult your dealer.

POWER STEERING OIL DRAINING

1.) Disconnect the inlet tube (Figure 1, Item ***A***) from the rear of the power steering oil reservoir.

2.) Loosen the bolt (Item ***B***) and allow the oil to drain into a suitable container.

FIGURE 1



POWER STEERING OIL FILTER

1.) Separate the reservoir (Figure 2, Item ***A***) from the pump.

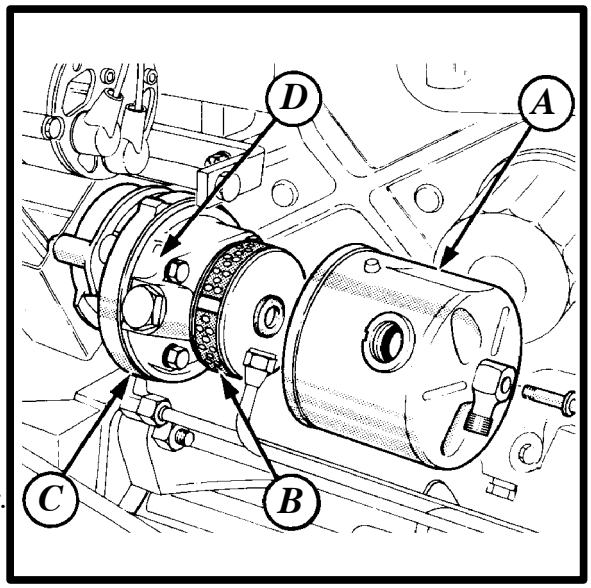
2.) Remove and discard the filter (Item ***B***) and 'O' ring seal (Item ***C***).

3.) Clean the pump and reservoir using a clean solvent and air dry.

4.) Install a new filter and 'O' ring seal on the pump.

5.) Re-assemble the reservoir insuring that the locating lug (Item ***D***) on the pump body aligns with the edge of the indentation in the reservoir.

FIGURE 2



EVERY 600 HOURS SERVICE - (CONT'D)

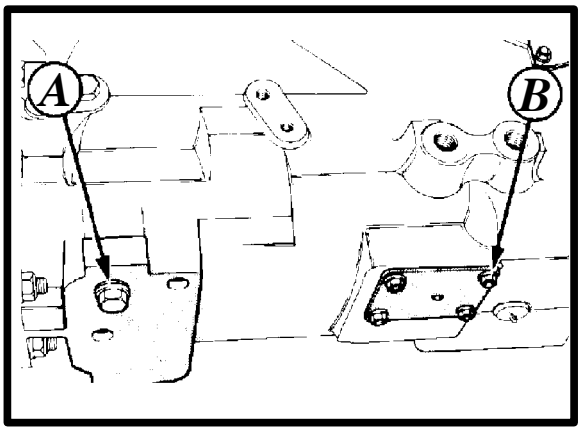
CHANGE HYDRAULIC OIL AND FILTER

1.) Secure the truck on level ground while the hydraulic oil is hot, remove the drain plug on the bottom of the hydraulic tank and drain the oil into a suitable container. (Remove the filler cap to accelerate draining.) When the tank has drained completely, replace the drain plug. ***WARNING***: DO NOT start the engine while the hydraulic tank is empty!
2.) Remove and replace the hydraulic filter and seal. Refer to **EVERY 300 HOURS SERVICE**.
3.) Fill the hydraulic tank with new oil, refer to **LUBRICANTS**. Install filler cap.
4.) Operate the truck to circulate the oil and recheck the oil level. Check for leaks.

CHANGE TRANSMISSION OIL AND SCREEN

1.) While the oil is hot and the truck is secured on level ground, remove the drain plug from the bottom of the transmission (Figure 1, Item ***A***) and drain the oil into a suitable container.
2.) Remove the bolts and the hydraulic pump filter screen plate (Item ***B***).
3.) Remove and discard filter screen and gasket.
4.) Install new filter screen and gasket.
5.) Torque bolts to 38ft.lbs.
6.) Re-fill transmission with required lubricant (see **LUBRICANTS**).
Remember to change the transmission oil filter cartridge (see **EVERY 300 HRS SERVICE**).

FIGURE 1



CLEANING THE FUEL TANK

WARNING: NO SMOKING OR OPEN FLAMES while cleaning the tank!

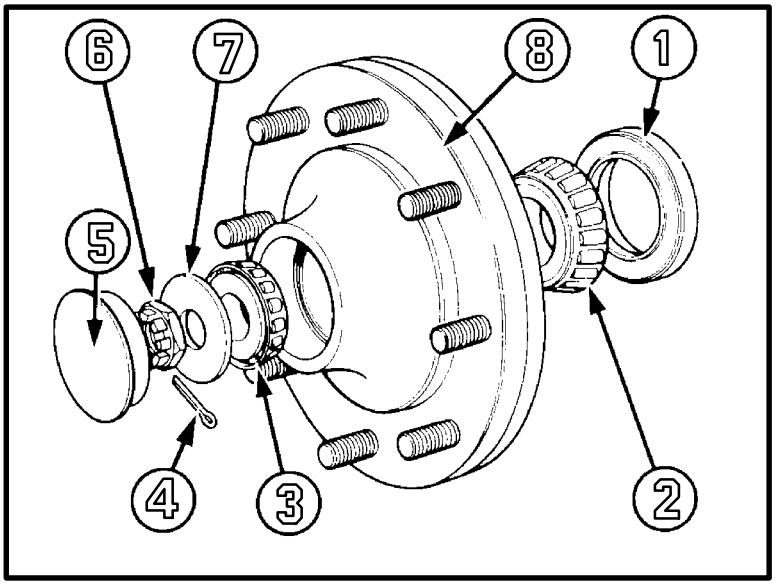
CAUTION: Protect eyes, hands and face from fuel spills and splashes!

1.) Close the fuel supply valve located on the back side of the tank.
2.) Remove the drain plug and drain the tank into a suitable container (remove the filler cap to accelerate draining).
3.) Run several gallons of clean fuel through to rinse the tank, re-install the drain plug.
4.) Fill with clean, filtered fuel and re-open the fuel supply valve.

EVERY 600 HOURS SERVICE - (CONT'D)

REAR WHEEL HUB BEARINGS (2 Wheel Drive)

FIGURE 1



The Rear Wheel Hub Bearings should be cleaned and repacked with new grease as follows:

1.) Secure the Truck on level ground, apply the handbrake and jack up the front wheel. Remove the hub cap (Item ***5***), the split pin (Item ***4***) and the bearing retaining nut (Item ***6***).

2.) Remove the outer bearing (Item ***3***) and the thrust washer (Item ***7***).

3.) Remove the complete hub assembly and extract the grease retainer (Item ***1***) and the inner bearing (Item ***2***) from the hub (Item ***8***).

4.) Thoroughly clean all parts in a suitable solvent and allow to dry naturally.

5.) Inspect the bearing components for discoloration or wear (replace necessary).

6.) Re-pack the cones with a good quality, fibrous, high melting point grease to Ford Spec. M1C 137-B, put a thick layer of grease in the space between the bearing cups but do not pack the hub completely. Grease the surface of the spindle.

7.) Re-assemble using a new grease retainer (Item ***1***) and tighten the castellated nut (Item ***6***) to 20 - 30 ft.lbs. (2.77 - 4.15kgf/m).

8.) Rotate the wheel hub three to six revolutions in a clockwise direction. Further tighten the castellated nut to 45 - 55 ft.lbs. (6.22 - 7.20 kgf/m).

9.) Loosen the nut two slots then tighten, as necessary, to align with the hole in the spindle.

10.) Install a new split pin (Item ***4***) and install the hub cap (Item ***5***).

11.) Repeat the operation on the other Rear Wheel Hub Bearings.

EVERY 1,200 HOURS SERVICE

CHANGING DRIVE AXLE OIL

1.) With the oil hot and the truck secured on level ground, remove the drain plug (Figure 1, Item ***A***, found under the drive axle) and allow the oil to drain into a suitable container. The drive axle on trucks with 4 WHEEL DRIVE is drained from the transfer case (Figure 2, Item ***B***). Re-install plug.

2.) Remove the drive axle filler/plug dipstick (see **EVERY 50 HOURS SERVICE**) and add oil of the recommended type (see **LUBRICANTS**) until the oil level reaches the full mark on the dipstick, as required. Do not overfill.

FIGURE 1

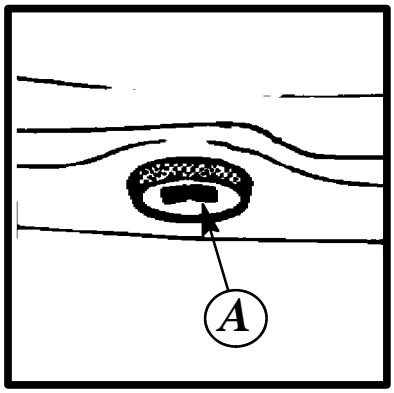


FIGURE 2

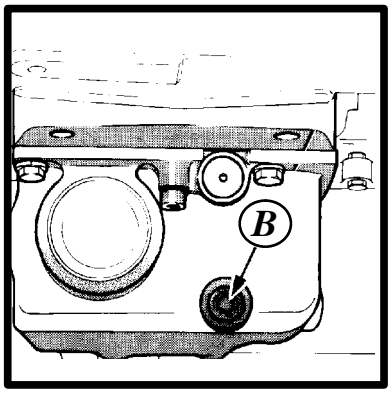
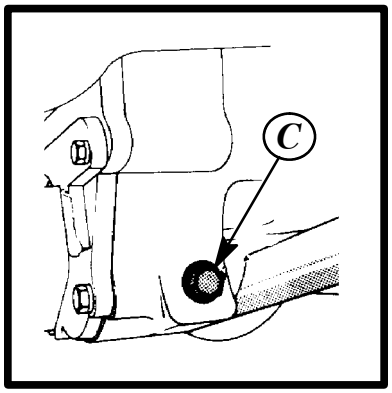


FIGURE 3



CHANGE STEERING AXLE OIL (4 WHEEL DRIVE ONLY)

1.) Remove the drain plug (Figure 3, Item ***C***, on the bottom of the steering axle) and allow the oil to drain into a suitable container. Re-install the drain plug.

2.) Remove the level/filler plug (see **EVERY 50 HOURS SERVICE**) and re-fill the differential with the recommended oil (see **LUBRICANTS**), until oil flows from the hole. Re-install plug.

CHANGE STEERING AXLE HUB OIL (4 WHEEL DRIVE ONLY)

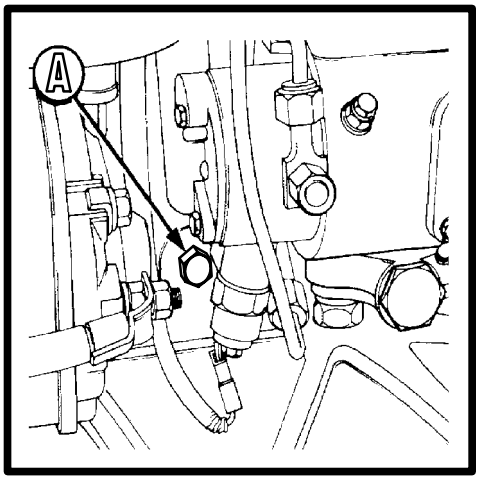
1.) Position the wheel so that the level/filler/drain plug is at the lowest point. Remove the plug and allow the oil to drain into suitable container.

2.) Re-position the wheel (see **EVERY 50 HOURS SERVICE**) with the level/filler plug in the horizontal position and refill the hub with the recommended oil (see **LUBRICANTS**) until oil flows from the filler plug hole. Re-install the plug and repeat the operation on the opposite wheel.

SEASONAL OR EVERY 2400 HOURS SERVICE

CHANGE THE ENGINE COOLANT

FIGURE 1



WARNING! THE ENGINE MUST BE COOL BEFORE REMOVING THE RADIATOR CAP! Keep the coolant off the skin, see precautions outlined on the anti-freeze container.

1.) Secure the truck on level ground, wait for the engine to cool, then remove the radiator cap.
2.) Open the drain cock on the bottom of the radiator and allow it to drain.
3.) Remove the drain plug on the engine block (Figure 1, Item ***A***) and allow it to drain.
4.) Close the radiator drain cock, replace the engine block drain plug and fill the system with water.
5.) Operate the engine until normal temperature is reached and again drain the system.
6.) Refill the system with a solution of 50% clean water and 50% Antifreeze. Always fill the radiator slowly to avoid trapped air pockets.
7.) Operate the engine to circulate and mix the inhibitor.
8.) Stop the engine and check the coolant level, add coolant if necessary. **IMPORTANT:** NEVER run the engine with the cooling system empty! DO NOT ADD COLD COOLANT WHILE THE ENGINE IS HOT!

FUEL TANK OUTLET SCREEN

WARNING: NO SMOKING OR OPEN FLAMES while working on or near the fuel tank!

CAUTION: Protect eyes, hands and face from fuel spills and splashes!

1.) After the fuel tank is cleaned (see **EVERY 600 HOURS**, "CLEANING THE FUEL TANK"), BUT BEFORE refilling the tank, open the fuel shut-off valve to drain the fuel line.
2.) Disconnect the fuel line and remove the fuel shut-off valve. Rinse the valve with clean fuel and inspect the attached screen. Replace the valve if the screen is damaged.
3.) Install the fuel shut-off valve and re-connect the fuel line.
4.) Fill the tank with clean, filtered fuel and open the fuel shut-off valve.
5.) It may be necessary to bleed the fuel filter (see **EVERY 50 HOURS SERVICE**, "BLEEDING THE FUEL FILTER").

HYDRAULIC OIL TANK OUTLET SCREEN

1.) While the hydraulic tank is drained (see **EVERY 600 HOURS SERVICE**, "CHANGE HYDRAULIC OIL AND FILTER"); remove the filler neck bolted on top of the hydraulic tank, reach into the tank and remove the filter screen (turn the screen counter-clockwise to remove).
2.) Replace the screen if any corrosion, holes or other damages are found. **WARNING!** DO NOT start the engine while the hydraulic tank is empty!

ELECTRICAL SYSTEM

FUSES

The fuse block is mounted under the dashboard. If a fuse burns out, replace it with one of the same capacity. Check the electrical circuit it protects and repair the cause of the short circuit. There is extra space available to fuse an optional circuit.

NOTE: Do not attempt to repair a blown fuse, always use a new one.

STARTER

The starter, mounted on the left side of the engine, requires no maintenance other than to keep its terminals secure and clean. Should the starter not function correctly, consult your dealer.

BATTERY

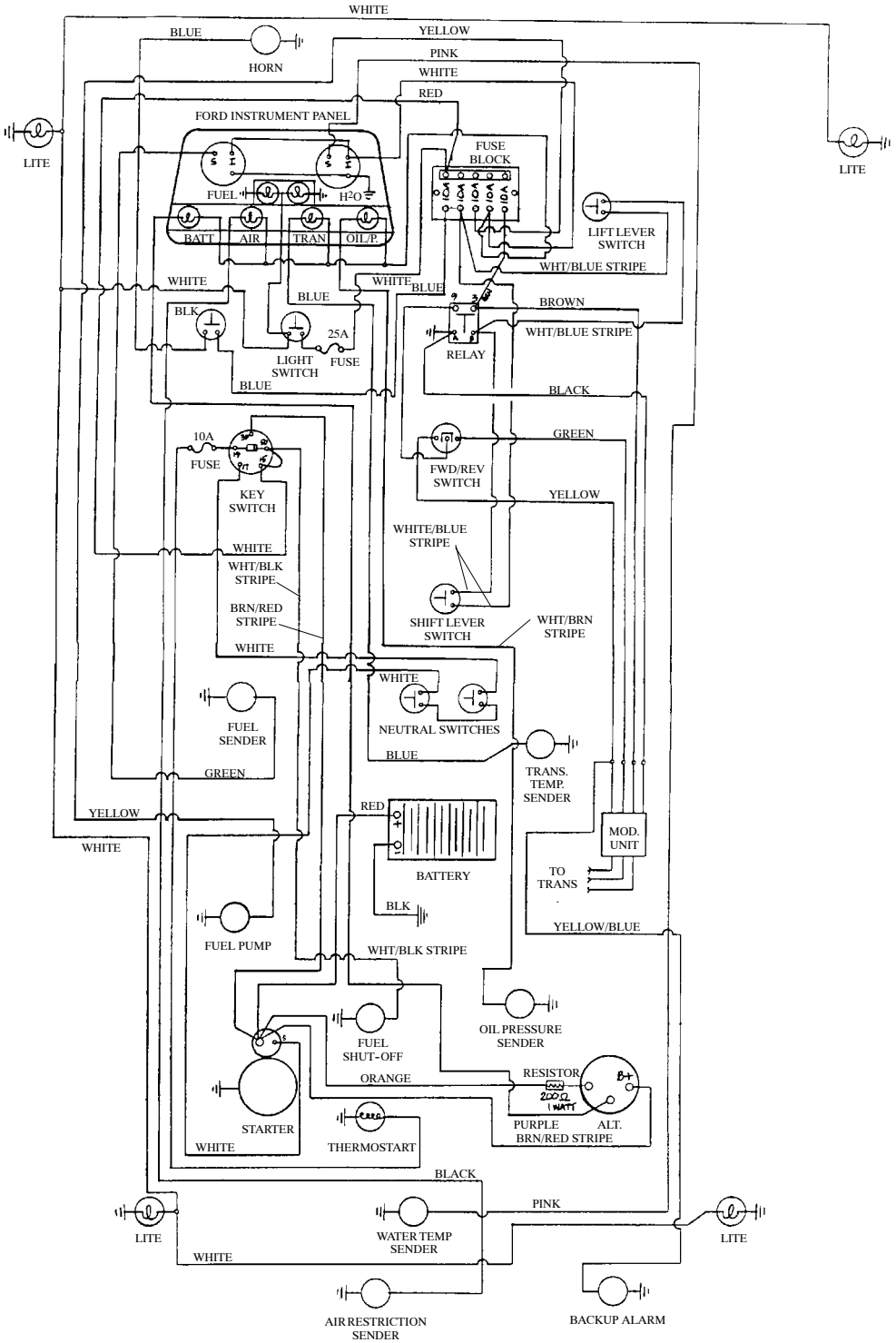
WARNING: ALWAYS wear eye protection when charging the battery or starting the forklift with an extra battery! Always operate the starter motor from the operator's seat.

1.) NEVER remove the battery or work on the charging system while the engine is operating.
2.) When installing the battery, make sure the connections are correct. INSURE the cable marked "+" or "P" is connected to the positive (+) battery terminal. And the cable marked "-" or "N" is connected to the negative (-) battery terminal.
3.) If an auxiliary battery must be used to assist engine starting, be sure to connect the terminals to the same polarity. USE 12 VOLT BATTERY ONLY!
   A) Connect the forklift battery positive (+) terminal to the auxiliary battery positive (+) terminal.
   B) Connect the auxiliary battery negative (-) terminal to the forklift engine block.
   See **DRIVING THE TRUCK**, "STARTING THE ENGINE". With the engine running at idle speed, turn on all electrical equipment (lights, etc.) then disconnect the booster cables in reverse order of the connecting procedure. This will help protect the alternator from damage due to extreme load changes.
4.) Always disconnect the battery terminals when using a battery charger.
5.) Never short circuit any of the charging components to ground (forklift chassis).
6.) Always disconnect the battery terminals when using a arc welder on the forklift.
7.) Do not attempt to start the forklift with the battery temperature below -29^0C or -20^0F. In extremely cold temperatures keep the battery in warm storage until ready for its use.

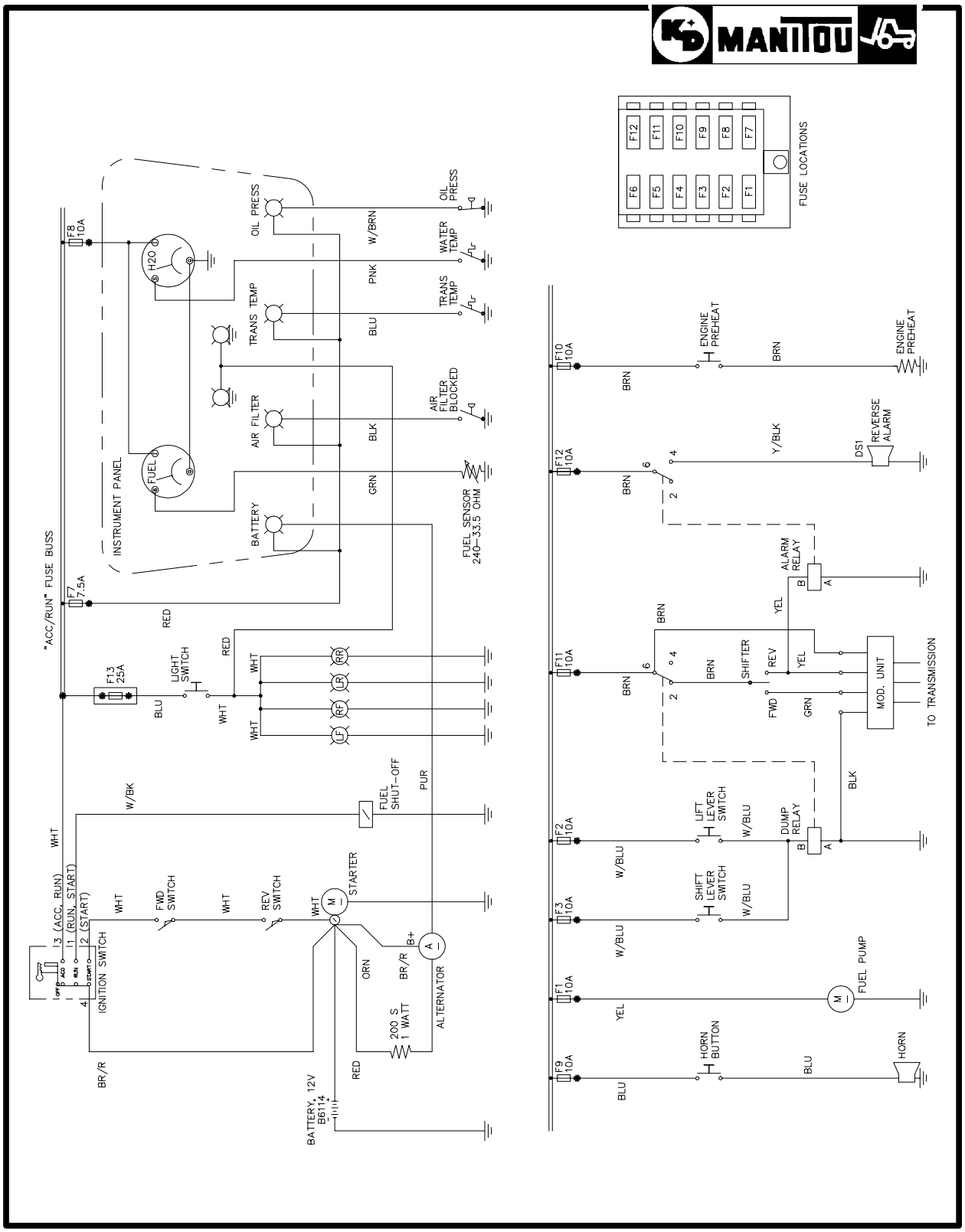
SEALED BEAM HEADLIGHT REPLACEMENT

1.) Carefully ease the sealed beam out of the rubber rim by hand.
2.) Remove the two screws to disconnect the lighting wires. Properly discard the sealed beam unit.
3.) Install a new sealed beam unit by re-attaching the two wires and securing the lamp in the rubber rim.
4.) Loosen the headlight at the mounting bracket bolt and adjust the lamp to avoid blinding oncoming drivers.

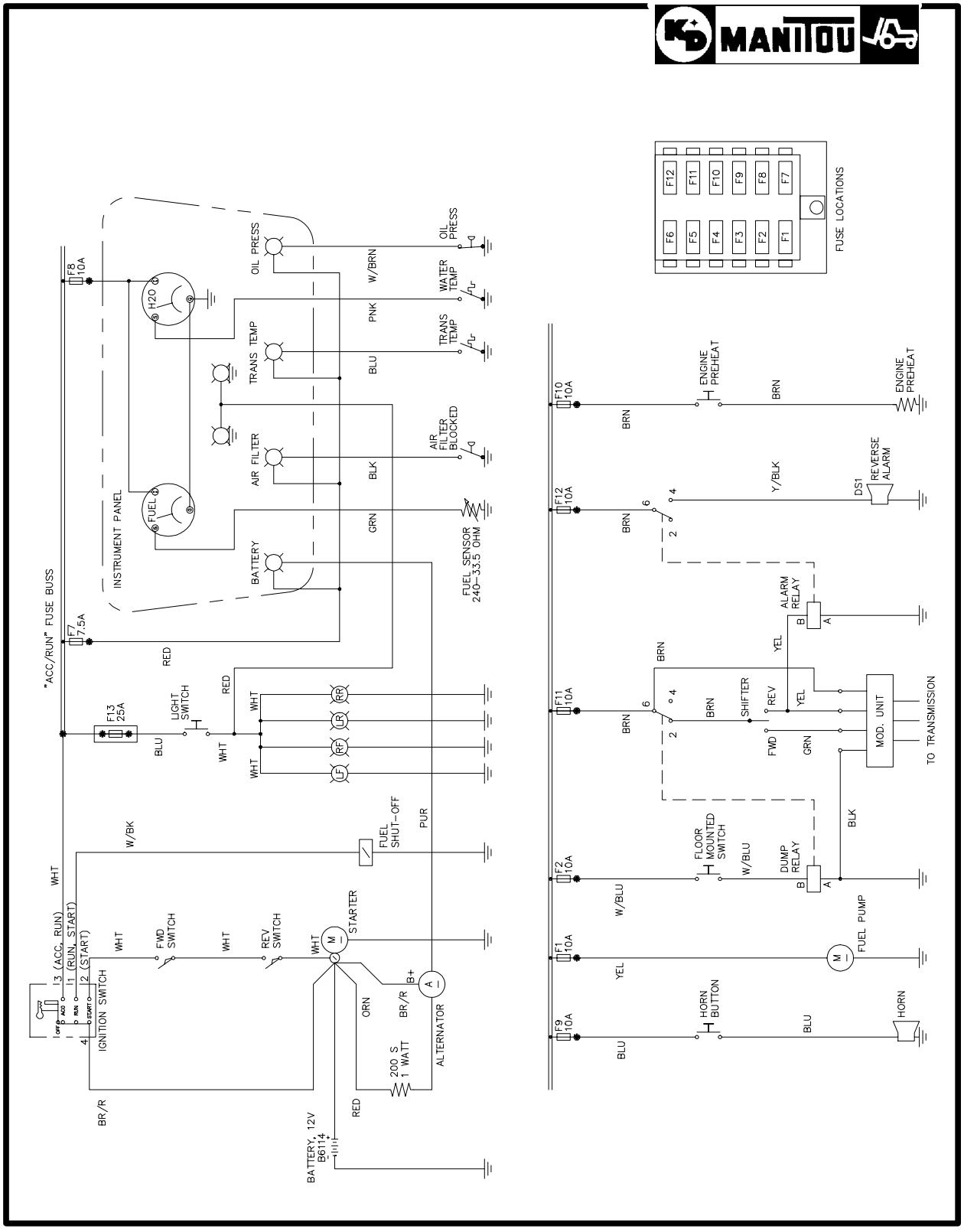
EARLY WIRING SCHEMATIC (SINGLE RELAY)



LATEST WIRING SCHEMATIC
(DUAL RELAY, DUAL DUMP SWITCH)



LATEST WIRING SCHEMATIC
(DUAL RELAY, SINGLE DUMP SWITCH)



STORAGE

Lift trucks that are to be stored for an extended period should be protected. For storage:

1.) Thoroughly clean the lift truck. Use touch-up paint where necessary to prevent rust. Replace any illegible safety decals.

2.) Check the lift truck for worn or damaged parts. Install new parts as required.

3.) Lubricate the lift truck. Drain and refill the transmission, front and rear axle with new oil. Drain the engine oil and refill with new oil. Also, check & clean or replace the air cleaner.

4.) If the lift truck is stored or removed from operation for an extended period, special precautions should be taken to protect the fuel injection pump and the injector nozzles against corrosion and gumming.

A special cleaner, available from most oil companies, is required for flushing the diesel fuel system. Or mix one U.S. pint (0.8327 Imp. Pt.) (.4732 Liters) of SAE 10 non-detergent engine oil with 10 U.S. quarts (8.33 Imp. Qts.) (9.5 Liters) of No. 2 diesel fuel.

Drain the fuel tank and pour two U.S. gallons (1.67 Imp. Gals. or 7.57 Liters) of the special flushing oil (or lubricating mixture) in the fuel tank.

Run the engine for 10 minutes to assure complete distribution of the special oil through the injection pump and injectors. Fill the fuel tank with No. 1 diesel fuel.
IMPORTANT: Do not use No. 2 diesel fuel for winter storage due to wax separation and settling.

5.) Drain the radiator and engine block coolant. Flush the system, close the drain valves, and fill with 50% quality antifreeze and 50% clean water.

6.) Remove the battery and clean thoroughly. Be sure that the electrolyte is charged and at its proper level. Place the battery in cool, dry storage above freezing temperature. The battery should be charged periodically during storage.

7.) Place blocks under the tractor axles to remove weight from the tires.

8.) Cover the exhaust pipe opening.

SERVICE AFTER STORAGE

Lift trucks should be completely serviced after storage in the following manner:

1.) Inflate the tires to the recommended pressures and remove the blocking.

2.) Fill the fuel tank with fuel. Check the oil level in the crankcase, hydraulic system, rear axle, transmission, and the power steering reservoir.

3.) Install a fully charged battery and remove the exhaust cover.

4.) Check the cooling system coolant level.

5.) Start the engine and allow it to idle a few minutes. Be sure the engine is receiving lubrication and that each control is functioning correctly.

6.) Carefully drive lift truck without a load to be sure it is operating satisfactorily.

NOTES: